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Improvised U. S. Cavalry passes through an Italian town on way to front.

JANUARY-FEBRUARY, 1944

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Organized November 9, 1885

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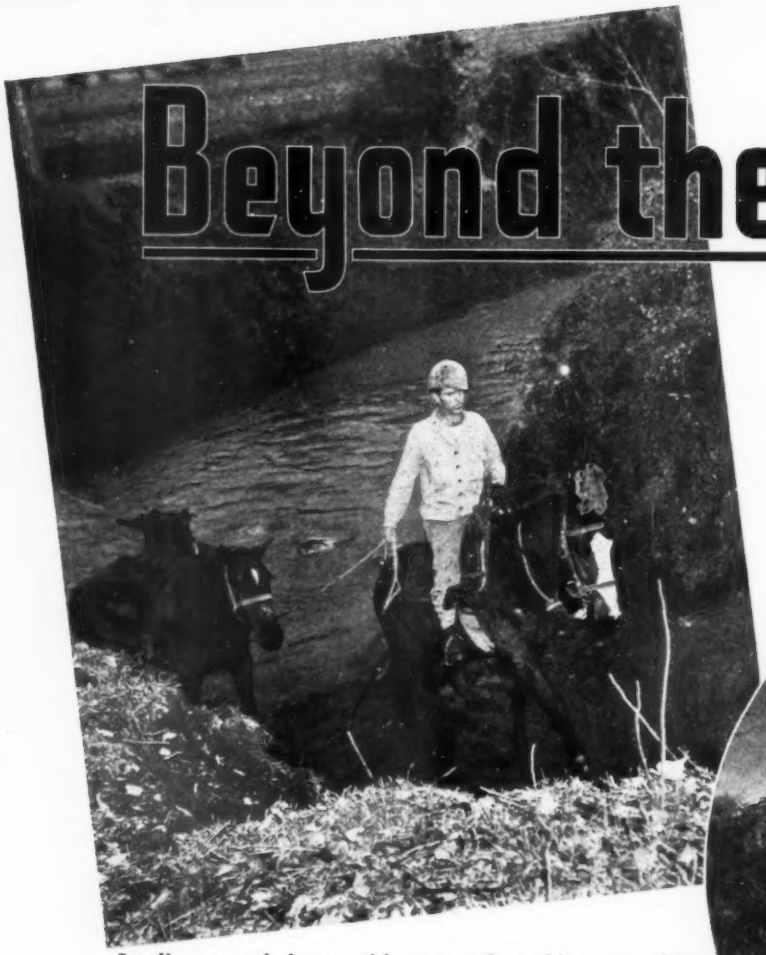
Beyond the Jeep-Lin

"A Motorized Vehicle is no better than its terrain . . . a horse is."



Leading a pack horse with mounted machine gun, this cavalry reconnaissance trooper with the 3d Infantry Division rides his Italian mount out of a stream crossing.

Above: A lone trooper ascends a steep hill "beyond the jeep-line." His Italian horse is accustomed to this terrain.

Left: A machine gun squad of a mounted reconnaissance unit crosses a stream near the 3d Infantry Division front in the Appenines in Italy. The basic ammunition load has recently been increased to 10,000 rounds in view of the large amount of front-line fighting in which these troops are engaged.

in Italy

ALONG the mountainous Fifth Army front in Italy, where men deal with realities, not theory, mounted reconnaissance troops of the 3d Infantry Division, under the direction of cavalrymen, have made a dramatic and valuable contribution to the drive on Rome.

Since Salerno this improvised cavalry, ranging day and night through the wild Appenines in front of the infantry, has maintained liaison, patrolled, fought, gotten information, taken prisoners. More than 150 horses have been engaged in these operations. As many soldiers have been given the *rudiments* of cavalry training. In addition, several hundred mules are being used daily to pack food and ammunition high up into the mountains. One complete organization of pack artillery fights regularly on the division front.

More horses and cavalrymen are joining other units of the Fifth Army. The explanation is simple: *A motorized vehicle is no better than its terrain; a horse is.*

The Fifth Army is pushing over some of the toughest fighting country of the war. For months, line troops have been fighting thousands of feet up steep, forested slopes, sometimes in snow. Weeks of continual rains have flooded all forward areas, turned mountain streams into muddy torrents. Retreating Germans have systematically mined roads, blown bridges.

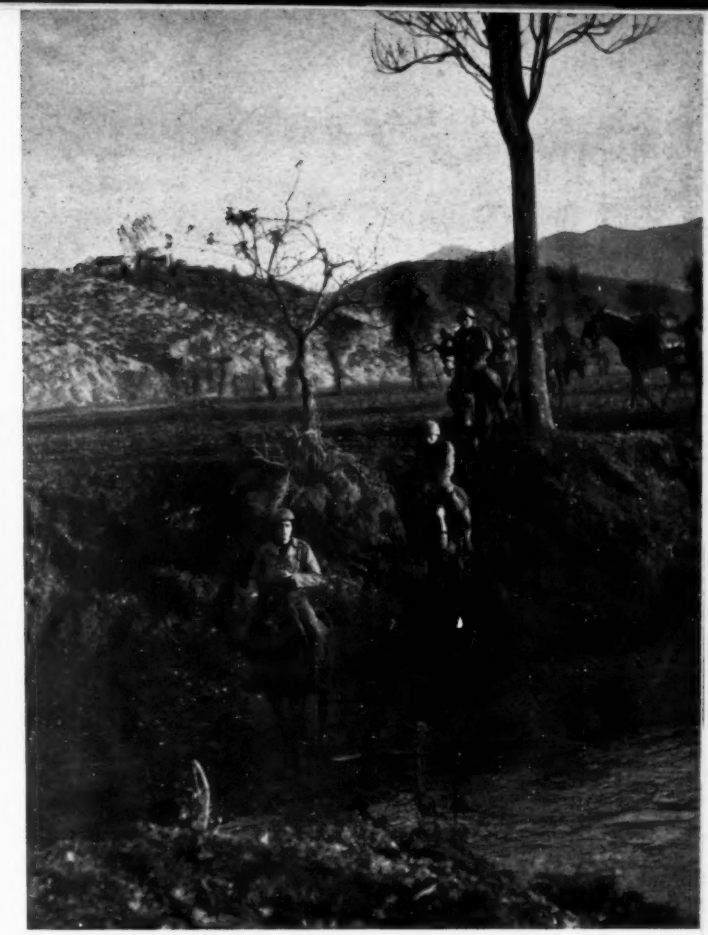
Recently, bombers were used to drop cans of food to outlying units. These units were not cut off or lost. They constituted an active section of the Fifth Army front in Italy. This is cavalry country.

Animals were used for the first time in European operations in Tunisia, where donkey pack trains were hastily assembled to carry food to troops isolated in rocky hills. In Sicily, Seventh Army troops fought in mountainous regions, far above the "jeep line." To solve its supply problem, one unit organized a pack outfit of four platoons with 168 mules and burros. Immediately, signal outfits borrowed so many animals out of the service trains to pack wire and radios up mountain trails, that a fifth communications platoon of pack mules was added.

At the conclusion of the Sicilian campaign, operations officers of the 3d Infantry Division looked at maps of the Appenines and reasoned: "We'll have to have animals for supplies, why not mounted reconnaissance over the same terrain?"

by Technical Sergeant Robert Geake

Sergeant-reporter, Fifth Army, Italy.



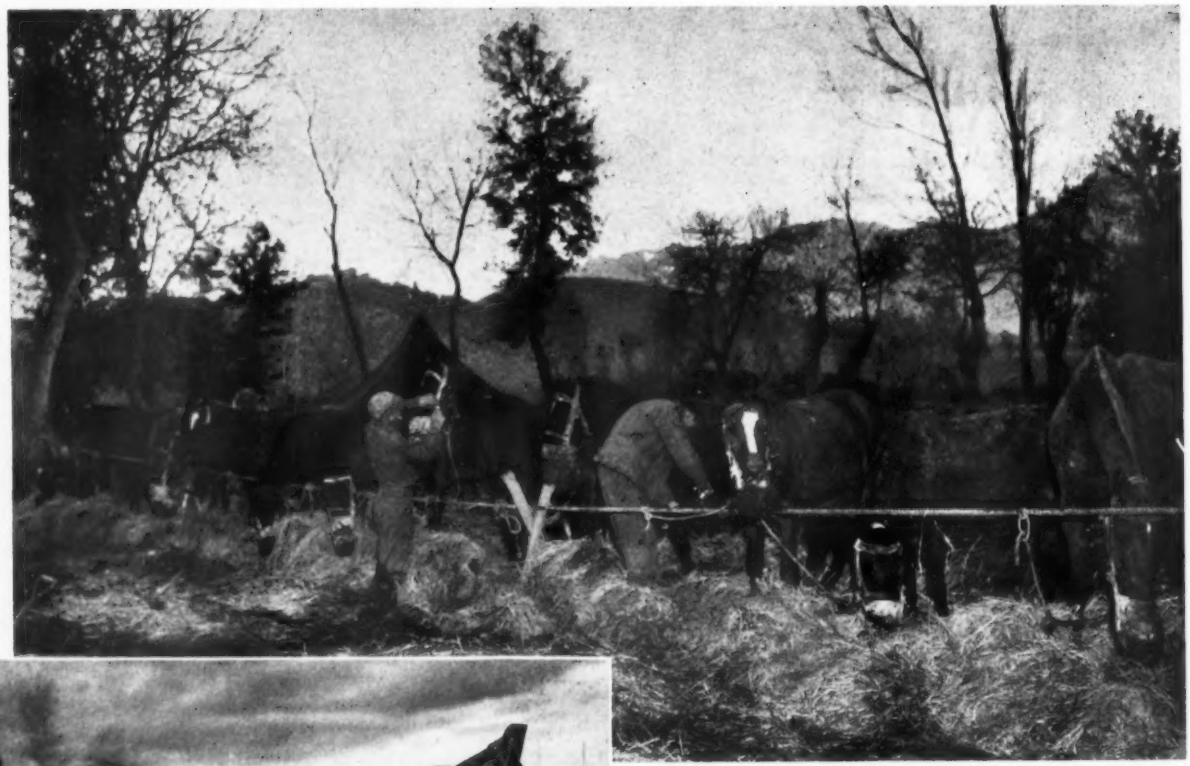
A mortar squad of the 3d Infantry Division's mounted reconnaissance troop crosses a stream near the Fifth Army front in Italy. The rear horse is shown with gun pack and 24 rounds of 60mm ammunition. The ammunition pack horse (fourth from front) is carrying 36 rounds. Mortar can be unloaded, set down and fired in 20 seconds.

Nothing could have been more logical to the 3d Division's commanding general, a former cavalry officer. He provided for the immediate organization of a mounted reconnaissance troop and pack train. To head both activities, the general sent to Algiers for Captain Raymond F. Baker, a cavalryman of 20 years experience who had served with the 3d, 5th and 102d Cavalry Regiments.

Captain Baker's first job was to get some cavalry to organize. He issued a call for both officer and enlisted volunteers and guaranteed that "everyone would earn his spurs in a shooting gallery." From three infantry regiments and artillery, engineer, signal and medical units came four times as many volunteers as were needed. Most of them were homesick farmers and ranchmen. Captain Baker admits that in the eliminations he was inclined to favor men who had ridden a horse!

The animals were assembled on a strictly catch-as-catch-can basis. The majority were Italian army horses that were requisitioned. Many privately owned animals were purchased outright by division headquarters or through AMG.

In similar fashion, the organization assembled its equipment. All of it was Italian except a sufficient



Above: Italian horses of the mounted reconnaissance troop are shown at the picket line in a Fifth Army bivouac area near the front lines. Straw is trucked in from surrounding farms to protect the horses' feet, since almost daily rains keep corrals knee-deep in mud.

Left: A member of the mounted reconnaissance troop makes a last minute adjustment on a machine gun pack as his unit prepares to go on a scouting mission. In the rugged terrain of the Appenine Mountains, horses are a recognized necessity.

number of Phillips Cargo Packs, which were requisitioned through Army headquarters and flown from North Africa. Weapons and ammunition carriers for both light machine guns and mortars were specially designed by the reconnaissance troops and built into the Phillips packs.

Italian saddles—"a light pack saddle with a seat"—were used throughout. They have proved generally inferior to American saddles in design and quality. The more experienced horsemen complain that they sit too high on the animal and that having the cinch in the middle of the saddle is a big disadvantage. Italian pack saddles are smaller and lighter than the Phillips pack and specially designed for Italian mules, which are "smaller, long-barrelled critters" in comparison with the Missouri mule. Consequently, to obtain a greater pay load, these pack saddles have been used on mules for both the service pack train, and an artillery pack unit which was added later.

The men were organized into reconnaissance and heavy weapons platoons, armed with carbines and given as much basic cavalry and reconnaissance instruction as infantrymen could take in one month. Fortunately for the "greenhorns," the horses proved easy to handle. Most of them had worked in mountains all their lives in the Italian army and were so trail-bound that it was difficult to get them out of line for drill formations. The new men picked up reining and riding tricks quickly—often from the horses!

In September, the Fifth Army's mounted troops set out for Italy. In the hold of one LST were 355 head of animals.

They reached the Salerno beachhead one afternoon and by midnight had unloaded. They were transported inland by a shuttle of 80 trucks. Pack artillery went into action at dawn. The following morning, reconnaissance platoons started out on their first mission over a road that had not been cleared of mines. The officers and men figure the mines are still on it.

(EDITOR'S NOTE: One cavalry colonel reported from Sicily that *not a single horse or mule in his unit was lost from mines throughout the Sicilian campaign.* "A horse or mule," he said, "will not step on a mine.")

Since the organization was essentially an experiment, it was first of all flexible. After a continuous month on trail, through and beyond "no man's land," the outfit was completely reorganized in the light of invaluable lessons learned the hard way.

It had been found that individual groups, such as platoons, were top-heavy. Three men had been doing work which two men could do much better. The unit was consequently split into three separate organizations all under one squadron command and directly under division control. These organizations were the pack howitzer unit, the mule pack train, and the provisional reconnaissance troop.

Formed from all artillery battalions in the 3d Division, the howitzer unit includes standard 75 artillery sections and a communications section. As the Fifth Army moved up the Appenine ranges, an increasing emphasis was placed on mountain artillery. It was cavalry country, and the Fifth "needed guns where only mules could put 'em."

From a "mule head," established at the end of the jeep trails, the mule pack train continues to service various forward units. Platoons of 26 mules, with drivers and packers, are assigned to units down to battalions as needed. Pack mules have on occasion been attached to the horse reconnaissance for special missions.

The reconnaissance unit was streamlined into smaller, more efficient platoons. Since the men were doing as much frontline fighting as reconnaissance, they were re-armed with '03's. Basic ammunition loads, always the biggest problem of the outfit, were increased to 10,000 rounds per machine gun, 100 rounds per mortar. A "horse pool" was set up to rest the animals on a rotation system and to take care of the sick, lame, etc.

The officers and men of this mounted reconnaissance troop in Italy never had a good look at friendly territory from the time they landed until they pulled back for a rest late in November. Week after week, they were out on trail in the mountains through rain and mud and bitter weather—infiltrating into German lines, identifying units, steering the infantry. During one period, they ate nothing but C and U rations for an entire month. Liaison patrols of only five or six men were often away from the main unit for 15 hours or longer.

On one occasion, 76 mounted troopers on a hill were attacked by over 300 Germans. The infantrymen, turned horsemen, picketed their mounts and went back into line action. Six hours later they forced the withdrawal of the superior forces which left behind 13 prisoners, three wounded and many dead. From under cover, 19 dead were counted on one section of the hill.

Later, 80 men of the reconnaissance troop attacked a hill where German troops were dug in with machine guns. After a five hour scrap, they killed 11 Nazis and captured the position and one prisoner. Another time, 19 cavalrymen, armed with carbines and one mortar, knocked out two enemy machine gun nests and killed 7 Germans in the process.

If ever a unit was welded together under fire, this improvised cavalry is it. Morale is excellent. And there will be more fire and more welding. Further reorganization will take place as new situations arise. Some day the outfit hopes to have a T/O.

As a flexible experiment in horse cavalry tactics, the Fifth Army's mounted reconnaissance troops have definitely proved that they have a place in today's war.

As one ranking officer summed it up: "We're fighting in cavalry country, and in cavalry country you need cavalry. They'll never change that!"

This GI blacksmith shop behind the Fifth Army front was set up to care for the hundreds of horses and mules being used in the drive on Rome. Mules are used in pack trains to get food and supplies up to frontline troops.

A British cavalry patrol reconnoiters a mountain area in the Appenines.

British Cavalrymen Re-Mount

Back to their old love, members of a now-mechanized British cavalry regiment use horses for reconnaissance in the Italian mountains.

Because of the hilly nature of the surrounding country, wheeled or tracked vehicles find the steep, narrow, twisting lanes impassable. The British officers have borrowed Italian cavalry mounts. Nearly all of the troopers, being formerly cavalrymen, are at home on horseback. November, 1943.

From an advantageous crest, this reconnaissance patrol views an enemy position.

Senior member of the naval party, setting off for a ride through the mountains, uses the only proper leather saddle available for the party's ride.

Yugoslav Partisans Fight Hitler

Not long ago, a small party of British sailors spent three days in a Dalmatian port, where they lived as guests of the Yugoslav Partisan Party. The Partisans are in control of nearly all the coastline of Dalmatia. The Germans are powerful only in the larger towns, such as Split, Dubrovnik, and Zara. The naval party were lent horses and taken for a ride through the mountain villages, where they were given a great welcome by the villagers.

Some 25 per cent of the Partisan Army consists of women who act as snipers in the mountains, and perform acts of sabotage. Note that the men pictured are all beyond the normal army age. Yugoslavia's army fell in June, 1941, and most men of army age have since been interned, killed or transported to Germany for slave labor. The determination and character in the faces of those still fighting is self-evident.

Left: Zaga, a typical Serbian girl of the Partisan Army, has a reputation as a sniper in the mountains.

Below: Two pictures of typical members of the Yugoslav Partisan Army.

Lower right: A junior member of the party of British sailors starts on his tour through the Dalmatian Mountains. *Below:* A partisan salutes with upraised fist.

Zina, famed throughout Croatia for acts of sabotage against the enemy, is an expert grenade thrower.

The Last Days in Tunisia

by Lieutenant Colonel Charles J. Hoy*

IN northern Tunisia, the first nine days of May 1943 presented some very interesting tactical examples of coördinated employment of all arms except horse cavalry. On May 1st, the general situation was as follows:

The American II Corps, composed of three infantry divisions and one armored division with attached units, had completed its march across the lines of communication of the British First Army.

With the infantry divisions shuttling, and the armored division transporting its tanks, this night march of 150 miles was one of the highlights of the entire campaign. The British Traffic Control Section deserves much credit for a job well done. Timing and control were vital. There were only a few roads. Three great columns had had to cross—the supply column of the British First Army running east and west; that of the American II Corps running north; and the reinforcing divisions from the British Eighth Army to the British First Army moving diagonally north to northwest, then north-northeast. The entire movement was made in one week. (See Map 1.)

If the II Corps had had a horse cavalry division, the latter could have made the march with ease. In the 1940 Louisiana maneuvers, the 1st Cavalry Division marched 75 miles in 24 hours and fought several engagements during that period.

Night March

The 81st Reconnaissance Battalion, after leading the breakthrough at El Guettar and making first contact with the British Eighth Army near Gabes, was assembled in the vicinity of Faid Pass. Joining up with the British, the unit marched back through Gafsa to Faid, east through Faid Pass to Kairouan, and then farther east to meet again the Eighth Army at Sousse.

When the 81st was withdrawn from the Kairouan-Sousse area to Faid, preparatory to moving north with the II Corps, it was given a few days in which to do some much needed maintenance work. If replacements arrived in time, the battalion was to take its rightful place in the 1st Armored Division, then being assembled for use as a unit for the first time in the Tunisian Campaign. The contemplated reunion was a great boost to morale. The 1st Armored Division had not been kept together in the past. The tactical situation had not permitted it. But things were to be different now. The 1st Armored Division was to be back intact, and all units were eager to deliver a "Sunday Punch."

During the long night march, the battalion moved just behind Division Headquarters at the head of the armored division. The march was to have been made in two jumps. The first—to the outskirts of Le Kef—was made without incident; but there it was learned from the division commander that, because of a necessary change in traffic control, the battalion would have to move on to Ain-Draham that night.

The moon was up, and the battalion started to roll. With 209 vehicles, it cleared Le Kef in 35 minutes! The British traffic control officer at Le Kef could not believe his figures. He called ahead to Souk el Arba, and the control agency there cleared the battalion in 38 minutes. Camp was made at Ain-Draham before dawn.

Position and Mission

Three days later, the battalion moved up to the Mouse Trap to fill the gap between the 1st Infantry Division on its left and the British 78th Division on its right. As it entered the valley, it came under long-range fire, but continued north for about 4,000 yards before contact was gained, after which it worked to the flanks to establish OP's.

The Mouse Trap is a fertile valley about 5 miles long and 3 miles wide. It is very flat and cut by branches of the Tine Wadi. (See map No. 2, page 11.) The wheat and poppy fields afforded excellent concealment for jeeps. A day later, an armored infantry unit of the 1st Armored Division moved into the hills to the right, between the battalion and the 78th Division.

The mission of the 81st was to develop the situation in its particular zone and then to act aggressively. That meant that the reconnaissance battalion was not to assault any position but, at the same time, was to take the initiative away from the enemy. It had to out-patrol the enemy day and night, or it would never be able to maintain its OP's. The OP's had not been gained by stealth. The enemy had seen them move in. The entire corps, however, was on the offensive.

An Amusing Incident

The enemy held the Anserine Farm, and the 81st had an OP within 2,000 yards of it. (This same OP was within 500 yards of enemy-held Djebel Badgar.) In general, the enemy held the two hill ranges on the battalion's flanks and the one to the north. The gap in front was held by antitank guns—exact location, unknown. The German would not fire until it was absolutely necessary. He knew he was being watched through field glasses. Artillery observers directed fire concentrations at even suspected locations.

An amusing incident occurred one day in the Mouse

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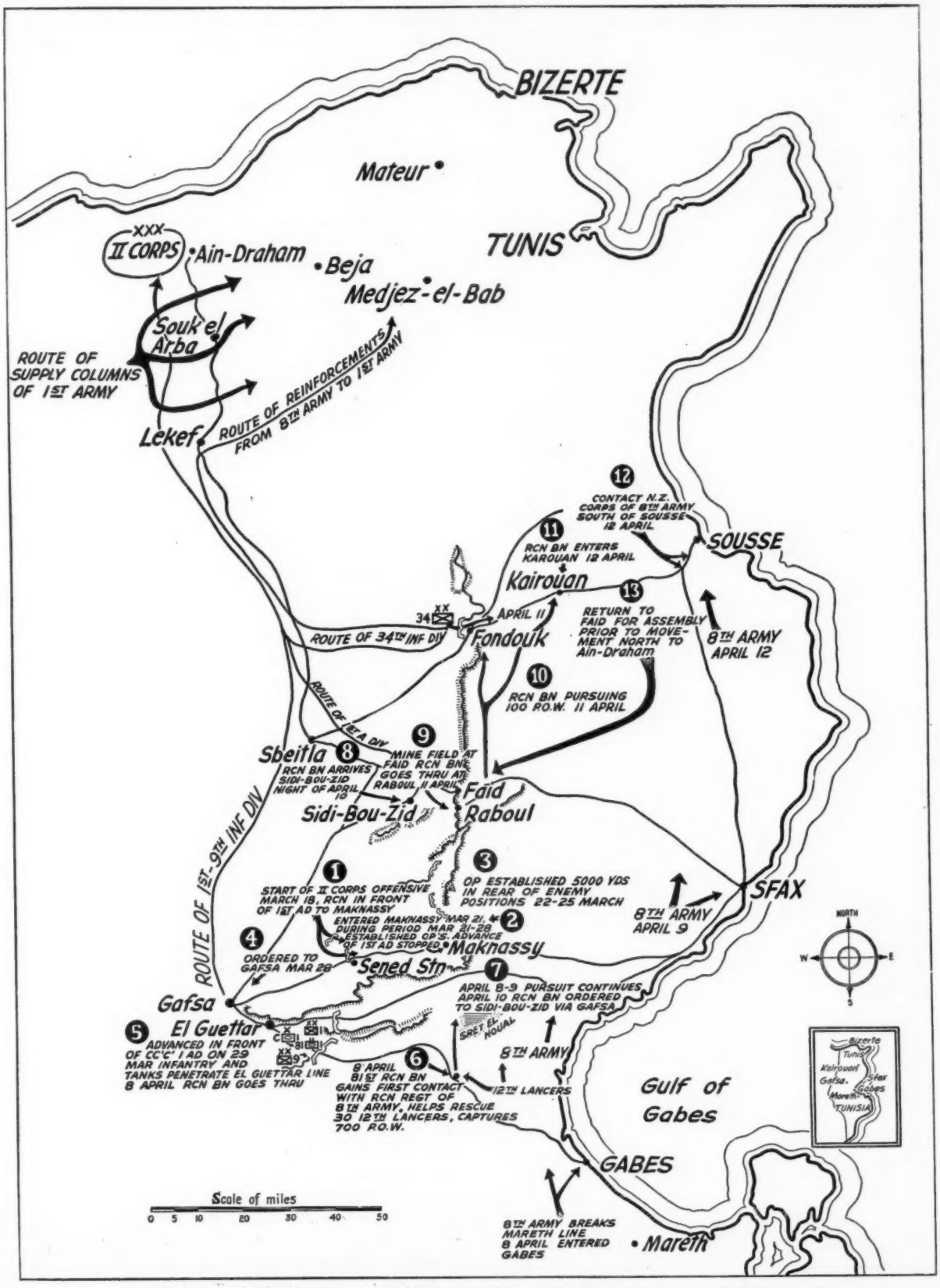
*Staff Faculty, The Cavalry School. Formerly Commander, 81st Reconnaissance Battalion, Tunisia.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ROUTE OF SUPPLY COLUMNS OF 1ST ARMY
ROUTE OF REINFORCEMENTS FROM 8TH ARMY TO 1ST ARMY
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APRIL 11
ROUTE OF 34TH INF DIV
Fondouk
10 RCN BN PURSUING 100 R.O.W. 11 APRIL
ROUTE OF 1ST A DIV
9 MINE FIELD AT FAID RCN BN GOES THRU AT RABOUL 11 APRIL
Sbeitla
8 RCN BN ARRIVES SIDI-BOU-ZID NIGHT OF APRIL 10
Faid
Raboul
Sidi-Bou-Zid
ROUTE OF 1ST-9TH INF DIV
1 START OF II CORPS OFFENSIVE MARCH 18, RCN IN FRONT OF 1ST AD TO MAKNASSY
3 OP ESTABLISHED 5000 YDS IN REAR OF ENEMY POSITIONS 22-25 MARCH
8TH ARMY APRIL 9
SFAX
2 ENTERED MAKNASSY MAR 21, DURING PERIOD MAR 21-28 ESTABLISHED OP'S. ADVANCE OF 1ST AD STOPPED
Maknassy
4 ORDERED TO GAFSA MAR 28
Sened Stn
7 APRIL 8-9 PURSUIT CONTINUES APRIL 10 RCN BN ORDERED TO SIDI-BOU-ZID VIA GAFSA
Gafsa
5 El Guettar
ADVANCED IN FRONT OF CC'C' 1 AD ON 29 MAR INFANTRY AND TANKS PENETRATE EL GUETTAR LINE 8 APRIL RCN BN GOES THRU
SRET EL HOUAL
8TH ARMY
6 8 APRIL 81ST RCN BN GAINS FIRST CONTACT WITH RCN REGT OF 8TH ARMY, HELPS RESCUE 30 12TH LANCERS, CAPTURES 700 R.O.W.
12TH LANCERS
Gulf of Gabes
GABES
8TH ARMY BREAKS MARETH LINE 8 APRIL ENTERED GABES
Mareth
Scale of miles
0 5 10 20 30 40 50
NORTH
W E S
Bizerte Tunis Kairouan Gafsa Sfax Gabes Mareth TUNISIA

Map No. 1—Allied positions, March 21-April 12, and subsequent routes of night march.

From "Signal Corps Training Film."

A leading car reconnoiters a crossroads in Tunisia before the second car advances. Note concealment by use of shadows and branches.

Trap. One of the 1st Armored Division halftrack ambulances came racing up to the crossroads just south of the Anserine Farm, and the driver, with the "valor of ignorance," instead of turning left, kept on straight toward the farm. This road had been used only as far as the crossroads. Dust generally would bring fire, but it was long-range and very inaccurate—never closer than 200 yards to a jeep. When fire got that close the driver would detour through the wheat and poppy fields.

As the ambulance rolled on toward the farm, observers kept field glasses on it and held their breath. If the German fired, his exact location would be known. The ambulance stopped at the farmhouse, turned quickly around, and came out a lot faster than it went in. The observers stopped the ambulance, and when the medical officer could talk, he informed them that he thought he had been moving to the rear instead of toward the front; that, as his vehicle approached the farmhouse, a German soldier had stood up beside a well camouflaged antitank gun and asked in English if there were any wounded in the ambulance. The doctor couldn't recall his answer, but the driver had turned the ambulance around and wheeled it away.

In addition to obeying the Geneva convention, the German apparently knew that if he exposed his gun by firing at anything less than a tank he would catch one hell of an artillery concentration!

Patrols and OP's

Patrolling was continuous day and night. One night a reconnaissance patrol, commanded by Lieutenant Jewett Dix, reconnoitered the North Tine Wadi, and succeeded in getting behind the bridge. It was learned that the bridge was defended, and the wadi unfordable. This was important information, since it meant that as soon as Jerry was driven back across the bridge, he would destroy it, with the consequence that Allied armor would be stopped at the demolished bridge. The action of this patrol also disclosed that antitank guns on the high ground, 400 yards north of the bridge, would command the wadi.

In connection with patrolling, it should be emphasized that night patrols must be thoroughly coördinated and planned, and that routes to and from the objective for the night must be assigned and followed. If two or more night patrols are to operate in a zone, then extreme care must be taken to see that their routes do not cross. Otherwise, if two patrols bump into each other, the chances are that they will start shooting. This is true, especially when two adjacent units send out night patrols. Higher commanders, therefore, must assign night patrolling areas. Under no circumstances should patrols from one unit go into another unit's area.

By the same token, unit commanders must closely coördinate their night patrols and specify or provide some means of identification.

One way to check and identify the opposing unit is to use a flashlight. This method, employed by patrols, appeared to be satisfactory. The challenging signal, for a particular night was a flashlight dot-dash; and the answering signal, two dots. From cover, the man challenging, flashed his signal. If the opposing unit was friendly, the proper answer signal was given. That stopped the fight. When no answering signal was given the fight continued.

Throughout operations of the 81st in Tunisia, it was necessary to hold OP's by force. On one occasion, the enemy attempted to take the OP close to Djebel Badgar with a platoon of infantry. The lieutenant on the OP saw the Germans coming and called over his radio to alert the two light tanks that were back under cover near a farmhouse some 500 yards from him. Guided out by radio, the tanks came up and caught Jerry as he was approaching across an open farm yard. Attacking mainly with canister, the crews of those tanks captured seven of the platoon and killed or drove back the rest. That OP was never bothered again.

Beginning of the Offensive

The II Corps plan in the Mouse Trap Valley, after reconnaissance had developed the situation, was for the infantry to drive the enemy back so that armored troops could seize the high ground north of the wadi. The infantry, after several days and nights of hard, bloody fighting in the hills on the right and left, finally drove the Germans back inch by inch.

Casualties were high. Artillery built roads to follow and support the infantry. Each little hill that had to be taken was bloodier than the last. The enemy had spent months preparing these positions, and when artillery or air pounded a position in preparation for the infantry

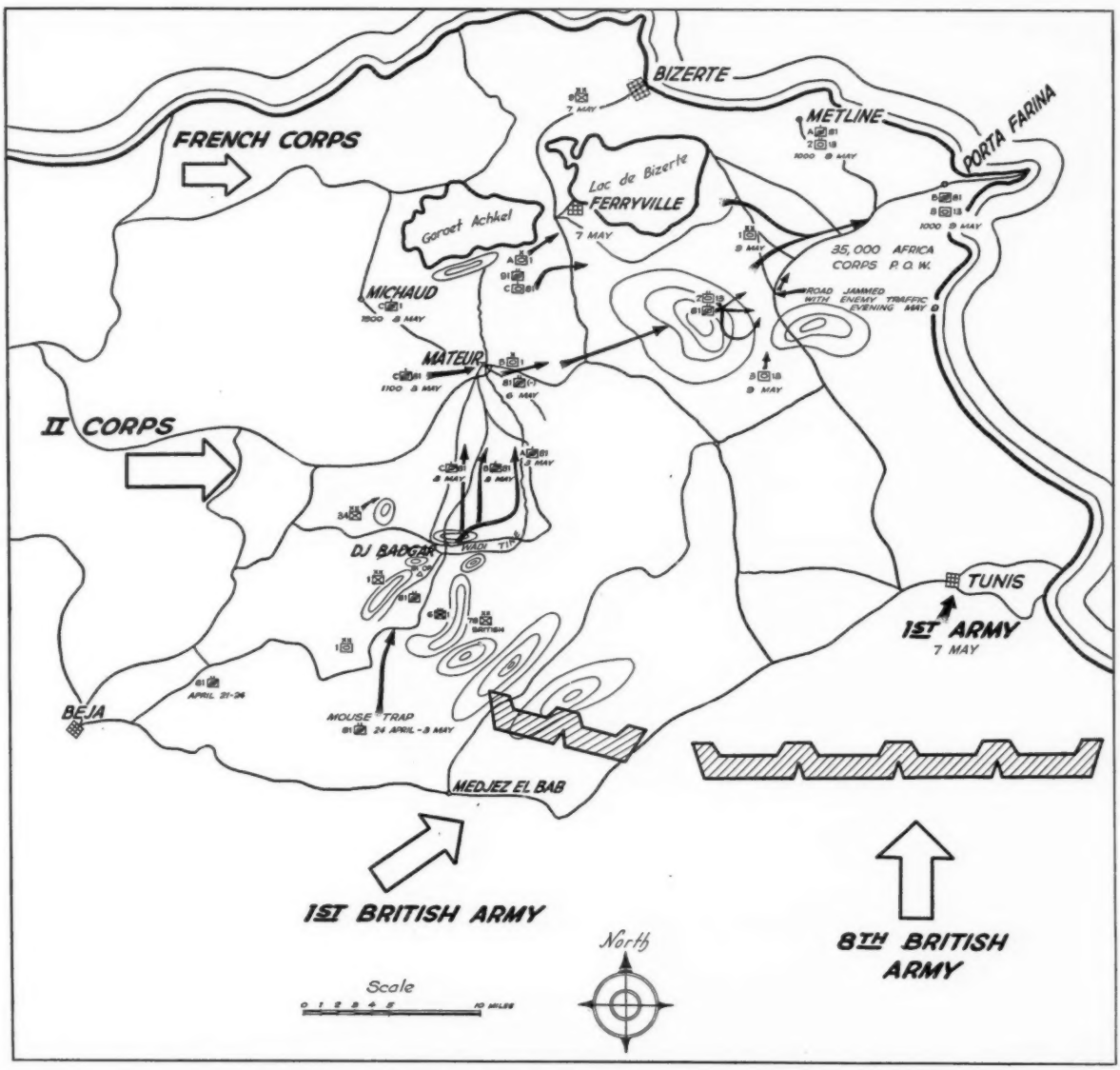
attack, Jerry stayed in his dugout until the artillery fire was raised. Then he remanned his guns and caught the infantry with withering fire in those last few hundred yards.

Each successive assault found the infantry moving closer to its own artillery fire. It is cheaper to take one per cent casualties from your own artillery than ten per cent from the enemy. In one attack, an infantry battalion, knowing that there were so many battalion salvos to be fired, were in on the enemy position before the clouds of dust and smoke caused by the last salvo had cleared. They were within 50 yards of their own artillery fire when it was lifted. The crucial period in the attack begins when the assaulting force closes with the enemy following the lifting of artillery supporting fire. The shorter this period is, the less the casualties.

Finally, on May 3rd, the infantry broke the enemy's position. The 1st Armored Division was alerted to go through the gap towards Mateur and exploit the infantry's success. The 81st Reconnaissance Battalion spearheaded that breakthrough. The wadi was forded to the north in rear of Djebel Badgar, and the pursuit was on.

The Advance

Shortly after dawn I saw one of the 81st scout cars halted on a trail. Going forward in a jeep, I pulled up alongside and started to ask why it was halted, but didn't need to. Under the scout car's front wheel was a wire tied to a stake just a few inches beyond my jeep on the right. The wire running under the front wheels of my jeep ended in an S-mine. Since there was no tension on the wire, two vehicles had crossed it without causing the mine to go off. Jerry had been careless.



Map No. 2—Allied positions during final push—April 21-May 9.

He had been pushed for time by the pursuing infantry, and was getting jittery. He had to be hit while he was reeling.

Soon after reaching the outskirts of Mateur, the battalion found the western bridge blown. Luckily the stream was fordable nearby. The town was entered in the face of light resistance, and about 100 prisoners were taken. Company C moved northwest and Company A moved east.

The eastern bridge was blown as Lieutenant Truman Boyd's platoon approached it. One of the German engineers who blew the bridge was killed; the other, captured. Lieutenant Boyd found a fordable place and crossed his platoon under fire of enemy guns. Casualties were heavy. Jerry, knowing that ford was the only place where the wadi could be crossed had set his guns on the high ground 2,000 yards to the east. Captain Roy Manly, commanding Company A, brought up his three assault guns and assisted Boyd's platoon in crossing. Once across, Boyd pushed on to the high ground 3 miles east of Mateur.

Our engineers were close on our reconnaissance heels and started to work at once on putting a bridge across the wadi. Twenty-four hours later we crossed our first medium tank. That fact is significant.

A horse cavalry division would not have had to change gaits in crossing that wadi at any place along the 3-mile front.

On May 6th, from the high ground initially reached by Lieutenant Boyd's platoon, an assault was launched that broke the enemy's Ferryville-Mateur line. This action was a perfectly coördinated tank-artillery-tank destroyer attack. With the right flank protected by a smoke concentration, the leading wave of tanks moved in under the supporting artillery fire of 3 battalions.

The 81st Reconnaissance Battalion followed to mop up after the tanks had passed over the position. Even though the tanks drove over the enemy position, many of the Germans lay "doggo" in their dugouts and had to be cleaned out by dismounted personnel from the reconnaissance battalion.

Horse cavalry can follow tanks in a breakthrough and perform this mission.

The tank attack moved on until after dark and the enemy position had been pierced in the south at Mateur. The pursuit was again on.

Pursuit

On the morning of May 7th, Combat Command A pierced the enemy position on the north at Ferryville. For the first time in five months I saw 88mm guns in action. I had heard them, but had never before seen them until after they had been damaged and abandoned. That was because they were so well camouflaged. Now, as the enemy was being hard pressed, he did not have time to conceal them properly—and the 88mm is not an easy gun to conceal. A gun seen is a gun lost. I do not know how many guns the tanks destroyed, but there were many.

An armored car advances on the road to Mateur. In the foreground is a wrecked German Mark VI tank.

When the enemy is cracked and being pursued relentlessly, many ridiculous things happen, such as scout cars overrunning 88mm guns and chasing tanks. Of course, this only happens in a pursuit against a reeling enemy. Pursuit, however, is a vital part of war.

One reconnaissance platoon leader came upon an 88mm sticking out from behind a house, drove around to the rear of it, and machine-gunned the crew. A supporting 88mm across the road was destroyed by its own crew and abandoned. This cracking-up of the enemy did not come about because tanks or reconnaissance units had arrived on the scene. Far from it. It was the cumulative result of a terrific day-and-night pounding by artillery; a dogged pursuit by infantry that never let him rest—but drove him constantly back; a steady pounding by the air forces which at that time had air supremacy; and the relentless drive by armor, exploiting the success of the infantry-tank-artillery team.

On the afternoon of May 8th, Combat Command B of the 1st Armored Division, having been driven off the roads by 88mm's, attempted to by-pass by moving north into the mountains.

From the high ground overlooking the valley, a wonderful sight came into view. In the valley below, over a thousand German vehicles, moving almost bumper to bumper, were trying to get to the beaches. There was also a German airfield with several planes on it.

The vehicles started picking their way down slowly, but each trail led to a bottleneck or a dead end. *Getting down that hill was a slow process. Definitely it was not mechanized terrain.* Each bottleneck was covered by enemy antitank guns, and the unit had outstripped its artillery. The colonel in command put his tanks and tank destroyers in hull defilade, and the battalion's assault guns were put under the command of

one of the artillery observers. Those assault gun men had a field day.

The target was reported back, but no air was sent to bomb it—and rightly so. Air was flying over to keep the enemy, who had reached the beaches, from evacuating. It was not feasible to divert any air for this target. One thing a reconnaissance leader must remember is that, although he sees much of the big picture, he does not see it all and therefore he should not expect to have the artillery shell, or air bomb, every target that he reports. He is out there to give information, not to employ the command.

Horse cavalry could have come down off that plateau without any difficulty as far as the terrain was concerned. True, it would have suffered casualties

Wreckages of German Mark VI tanks put out of battle by Allied bombers. Mateur, 4/26/43.

from enemy fire, but an aggressive cavalry division could have played havoc with the enemy.

Tanks and other vehicles made their way down laboriously during the early dawn after they had been resupplied with gas and ammunition.

After a short tank fight south of Porta Farino, the 1st Armored Division found that it had taken over 35,000 German prisoners. Actually, it is better to say that the Americans had 35,000 prisoners, because they were the cumulative result of the coördinated effort of all arms present on the battlefield.

Conclusion

The greatest proponent of large horse cavalry units today is the battlewise doughboy. He sees crystal clear the need of units with *battlefield mobility* to exploit his successes. He knows that it is a tough, bloody fight to drive a determined enemy out of his strong defensive positions. With the aid of his supporting arms he can do it. He also knows that after he drives the enemy out of a position, the withdrawing enemy is vulnerable. He does not want to see the enemy get away. He wants his hard-earned success fully exploited.

The doughboy is aware of the fact that when the enemy uses mines and blows bridges to stop the tanks, he is thereby enabled to withdraw much of his force to a new stronghold, and the bloody infantry fight starts again. The doughboy is sure that if he had horse cavalry, the tank-cavalry-air team really would hit "pay dirt" in pursuit and exploitation.

The terrifying effect produced by charging Cossacks and Russian tanks is readily understood. We were on the receiving end of the tank attack at Kasserine and Faid Pass. The Germans used tanks to exploit. Had they used horse cavalry in conjunction with those tanks, few, if any of us, would have escaped. Although the country was bare and rocky—very similar to the Fort Bliss area—and offered no concealment and very little cover, it was possible to keep platoons behind and on the flanks of the enemy tanks. This was because the tank is relatively blind. One reconnaissance lieutenant pulled his platoon in behind some "boondocks" and, undetected, watched an entire battalion of tanks go through. Later, he marched past them on their flank and reported their location.

Horse cavalry would have discovered the platoon, and then the tanks would have destroyed it.

This article has made no mention of horse cavalry for use with reconnaissance units. Reconnaissance by horse cavalry units is *unquestionably mandatory* in certain terrain, but *there is a bigger job to be done by horse cavalry. This big job can be done only with horse cavalry divisions, trained primarily for combat to support and exploit infantry successes.*

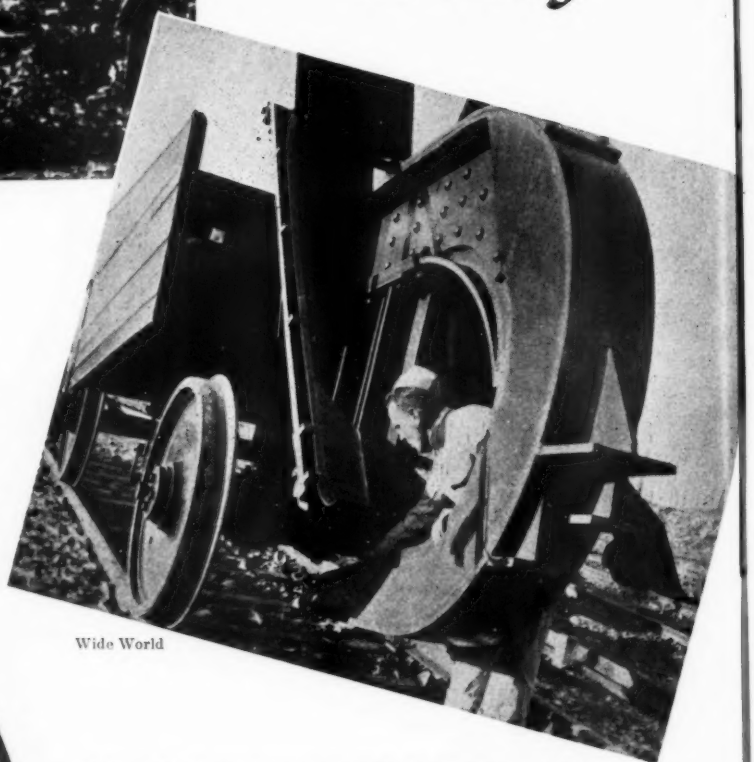
The speed of the Allied advance to Tunis was so rapid that the Germans had time only to run vehicles and Mark VI tanks to one place and apply the torch. These German prime movers were put in this position and burned.

Press Assn.

Left: The caption for this picture, received through a neutral source, says it shows "Heavy German anti-aircraft battery in action against attacking American bombers in the Appenine mountains." Note terrain.

German Defense in Italy

Right: The retreating Germans are now using a special machine for destroying railway tracks in Italy. This machine which weighs about ten tons has a large hook at the rear. While the machine is hauled along the lines, the hook rides under the sleepers and rips them up. At the same time, two-pound charges are dropped down a runway on either side of the machine onto the rails, where they settle with the aid of a clip and explode some seconds later.



Wide World

Below: According to the German caption on this photo, this is the first of six rockets being fired from one of Germany's new rocket guns.

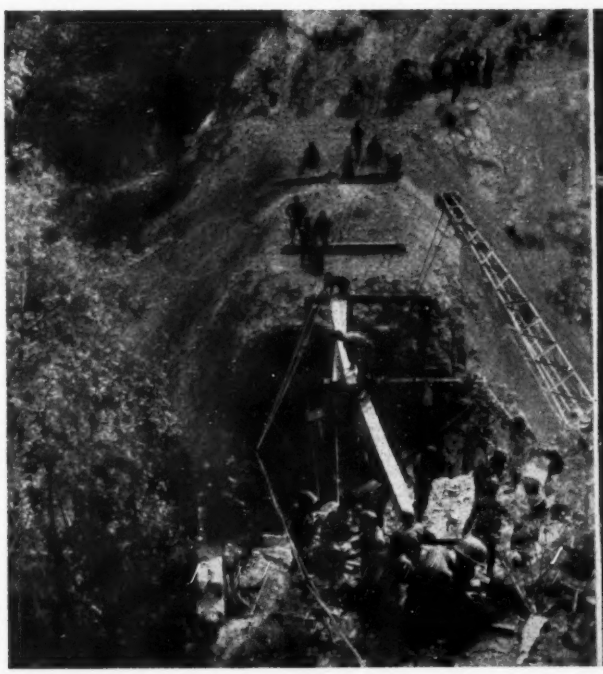
Press Assn.

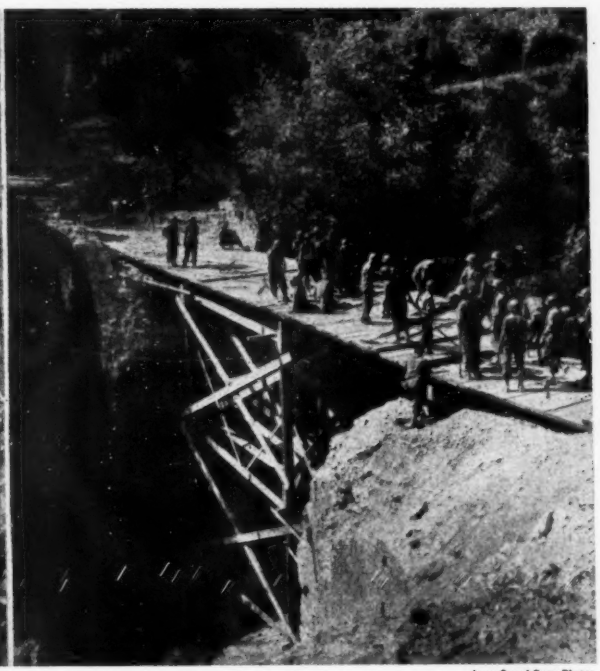
Below: Nazi gun crewmen rush forward to reload after a rocket gun fired. All six rockets have been discharged. In left foreground is a rocket gun awaiting reloading.

U. S. Engineers follow German Demolitions

When the Nazis retreat they use every means they know to hamper Allied advance. Blowing up bridges is one method.

These pictures show what happened when the U. S. Army Engineers tackled the job of replacing one in Italy.





Army Signal Corps Photos

Top picture gives an idea of the gap to be crossed. Here the uprights are in place and the spans are being laid.

And this is the completed bridge, only 10 hours after the U. S. Army Engineers went to work on the tough job.

The T

The author, a former captain in the Russian Imperial Army, is an expert military analyst of Red Army tactics and matériel.

The horse-plus-armor team pursues fleeing Germans.

by Nicholas Corotneff

ON November 19, 1942, two powerful Russian striking forces simultaneously broke through the German defenses to the north and to the south of Stalingrad, and started on their wide encircling movement, which four days later formed a ring around the German Sixth Army. This date will go down into history as the turning point of the Russian-German war. But it also has another significance. On this day a new and important tactical development manifested itself for the first time. A new and powerful combat team emerged with startling unexpectedness, and crowned its birthday with one of the most significant and far-reaching successes in this gigantic campaign. For the first time, independent tank and cavalry formations were welded into one unified striking force, which replaced the motorized infantry.

New Tactical Developments

From the very beginning, the Second World War has presented a series of new and often spectacular tactical developments. True, some of them were startling only because the trouble was not taken to foresee them. Some of them proved to be not as revolutionary as they at first seemed, and their antidotes appeared on the scene much more quickly and in greater force than many expected. Such is the famous tank-dive bomber team, which for a time reigned supreme and seemed to be the strategic weapon of this war. Its decadence has been completely proven in the breakdown of the German 1943 summer offensive in Russia.

There was at one time almost a complete consensus of opinion that the best antitank weapon was the tank. That is now disproved. The real solution proved to be an antitank area, a huge infantry-artillery team, with the tanks used largely for administering the *coup de grace* to the exhausted attacker.

In the light of these important and swift changes, it is only natural if nowadays there is an inclination to be wary, and to accept any new and startlingly unexpected tactical development with at least a grain of salt. No wonder, therefore, this new tank-cavalry combat team met a cautious and, in some quarters, a frankly skeptical reception.

More than a year has now passed since its birth, and in the course of this time the new tactical combination again and again has proved its remarkable efficiency and striking power under various sets of conditions. At its initial appearance, opinion was advanced that it might be only a seasonal combination, necessitated by the conditions of the Russian winter. After the latest exploits of the tank-cavalry team at Taganrog, Mariupol, and on the approaches to the Crimea, this impression has been dispelled as completely as the legend of the Russian incapacity for a summer offensive. There is every reason to believe that the new combat team, having proved its vitality, is here to stay. It therefore commands full attention, not only in its present stage of development, but with a view to its potentialities for the future. These seem to be great, and should be of special interest to the United States cavalry—possibly more so than to any other.

In the November-December issue of The Cavalry Journal an article by a Soviet military writer, Colonel Valyushkin, outlines the tactical foundations underlying the new team, and points out some of the varied—almost infinitely varied—combinations and interplays which the tank-cavalry combat team affords. The genesis of the team and appropriate illustrations of applied tactics may prove helpful in arriving at a better under-

Tank-Cavalry Team

A Study in Tactical Development

standing of its functions—a résumé, so to speak, of its prenatal influences.

There were two powerful factors that made the emergence of this team inevitable. One was the existence of tactics not only peculiar to the Russian Cossacks for many generations, but peculiar to the extent of being baffling and incomprehensible to the cavalrymen of other European armies. Taken from Mongolian invaders, and ancient in origin, these tactics—in many respects the antithesis of linear tactics—were based on depth, space, and disregard of rigid formations. Essentially opportunistic, shifty and fluid, they evolved from the idea of the decentralized conduct of combat, and a high degree of individual initiative on the part of every combatant. As such, these ancient tactics, sometimes contemptuously dismissed by orthodox military minds, proved after several centuries to be the most modern. They are based on the same principles that constitute the foundations of armored tactics.

The other factor that predetermined the Russian tank-cavalry team was a much younger but equally vigorous influence, which shaped its present most important tactical use—*that of a swift and powerful raiding force slashing deep into the enemy's rear.* This influence, (which during the last half century was in Russia, a carefully nurtured tradition) was to a great extent American in its origin. The new team was a direct result of these two factors.

Origin of Present Russian Tactics

First, the tactics on which a great part of the Russian cavalry, the Cossacks, were brought up for countless generations, since 1912 have been adopted by all Russian cavalry and have undergone continuous growth and constant developments since.

The first appearance of these tactics on the European scene during the Eighteenth Century and the Napoleonic Wars, when European cavalry for the first time experienced the methods of Cossack warfare, produced an impression of baffling incoherence. General Moran, who took part in almost every one of Napoleon's campaigns, commented on Cossacks: "These savage riders have no formations, no alignment, and do not present that precise regularity in movements which is so highly respected in our army. What a beautiful sight our cavalry presented when, glistening in the rays of the summer sunshine, it proudly deployed its slender lines on the shores of Niemn! And how sad it is to think that these masterly evolutions, which tired out the horses, proved to be completely useless against these Cossacks whom everybody despised beforehand, but who, nevertheless, accomplished more than any other cavalry."

And another of Napoleon's veterans, de Braque, says: "Some officers, especially those without battle experience, make a point of speaking about Cossacks contemptuously. Don't believe them. Ask Soult, Gerard; ask any seasoned campaigner. They will tell you that the light cavalry, which surrounds the enemy with an impenetrable veil of vigilance, which exhausts him, which always strikes, and almost invariably evades the counterblow, fulfills every goal that any light cavalry should strive to accomplish."

And then again: "It is extremely difficult to counteract these tactics. If the line is deployed against them, they close in a column and pierce it. When attacked in a column formation, they quickly disperse and envelop the column from all sides."

The newest tactics of the war are ancient in tradition—American by nature.

1. From Russian Cossacks, the modern Soviets learned the* lava *— that doubling back maneuver to encircle the enemy — that was so successfully employed by the Nazi panzers in their "Wedge and Kessel" days of 1941; also, by Rommel in Africa before the Battle of Alamein.

2. From American cavalry — Confederate and Union—of the American Civil War, the Russians adopted, practiced, and perfected the tactical employment of RAIDS deep into the enemy's rear.

These two tactical principles form the foundation of the newest combination in modern warfare—tanks and cavalry, successfully employed by the conquering Soviet armies.

Another contemporary, practically waxing poetical, said: "They come and break up like a mighty surf; they sting like a flight of hornets; and they disappear like smoke."

These commentaries, which strike a strangely contemporary note, reflect the now familiar picture of the

bafflement of linear tactics when faced with those based on space, depth, and disregard of dogmas.

This method of tactical action was called in the Cossack cavalry *"lava."* Although highly respected, it was not used by the regular cavalry until the present century. The main reason for this was the conviction that only Cossacks trained in the use of horse and weapons from early childhood could develop the degree of independent resourcefulness needed to make a *lava* truly formidable. It was considered almost impossible to impart it to recruits within the comparatively short training period.

Another reason was that many cavalrymen felt the same way as the Napoleonic officers quoted above. They could not relinquish the beautifully aligned formations, working with the precise regularity which had been a tenet for many generations. The arguments about *lava* and its adoption by the regular cavalry formations went on for almost a hundred years. Finally, in the period of military reforms that followed the Russo-Japanese War, the champions of *lava* won, and it was formally adopted by all the Russian cavalry in 1912.

Nature and Tactics of Lava

Here is how the Instruction for the use of *lava,* issued as an annex to the Russian Cavalry Drill Regulations of 1912, define its nature and tactical methods:

"Lava does not represent a formation, but a tactical action of cavalry, without any definite form or construction. The troops engaged in *lava* take the order which promises them the most success on that occasion. The success of the action depends wholly on the presence of mind and resourcefulness of the commander and all the men of every rank.

"Lava requires the display of independence from each separate combatant. Their actions are united by their seeking to achieve the common aim made distinctly clear to each, and by their keen attention to signals and commands from the leader. For a successful *lava* action, the following is required: excellent individual training of each man in the management of his horse and in the use of arms; the development of resourcefulness, a sense of responsibility, and a keen understanding of the maneuver to be undertaken; and the ability of each man to direct his actions independent of the others, to the achievement of the common goal. In *lava,* formations are applied in accordance with the form of the enemy's action, the object to be achieved, and the condition of the terrain.

"Lava is bound neither by definite formations, nor adherence to distances and intervals. Killing independence of groups composing it destroys the very meaning of *lava,* where everything must depend on the circumstances. *Lava* is successful only when it is confusing, and unexpected by the enemy."

It would be hard to give a better general definition of the very essence of armored tactics, or of the tactics of infiltration which proved to be one of the basic

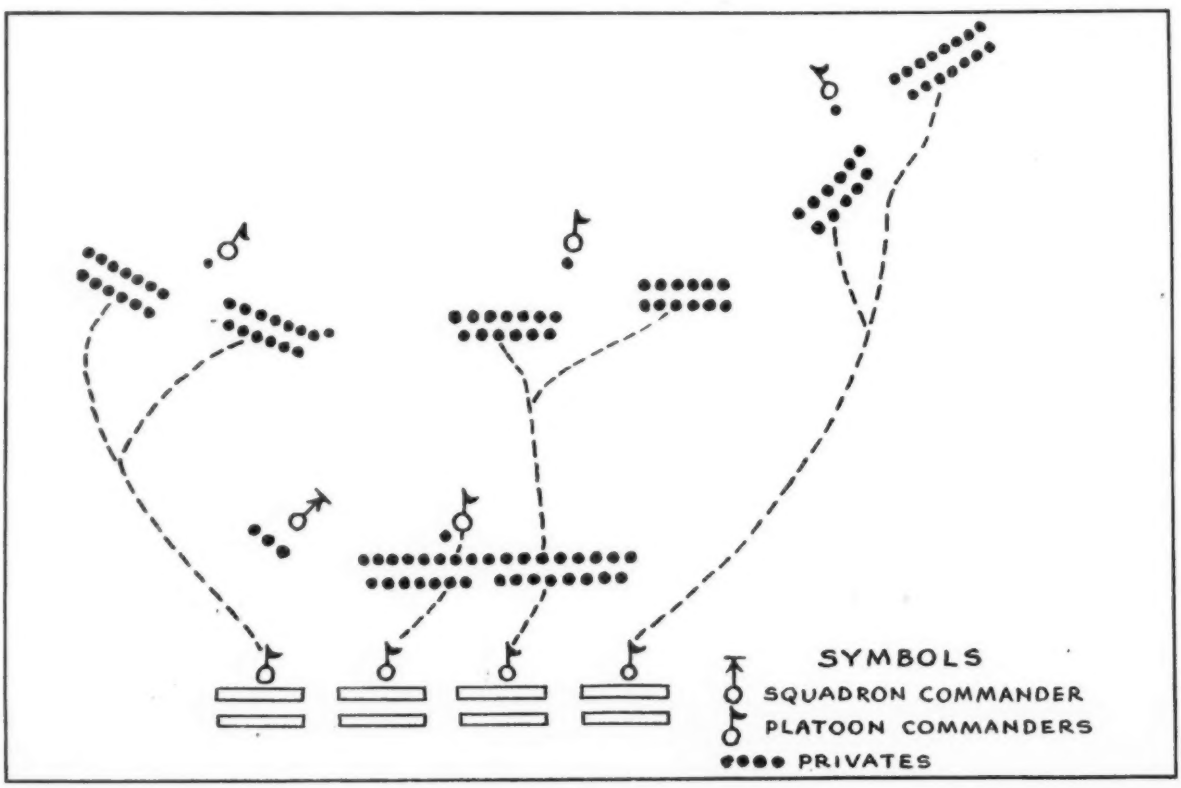


Chart 1.

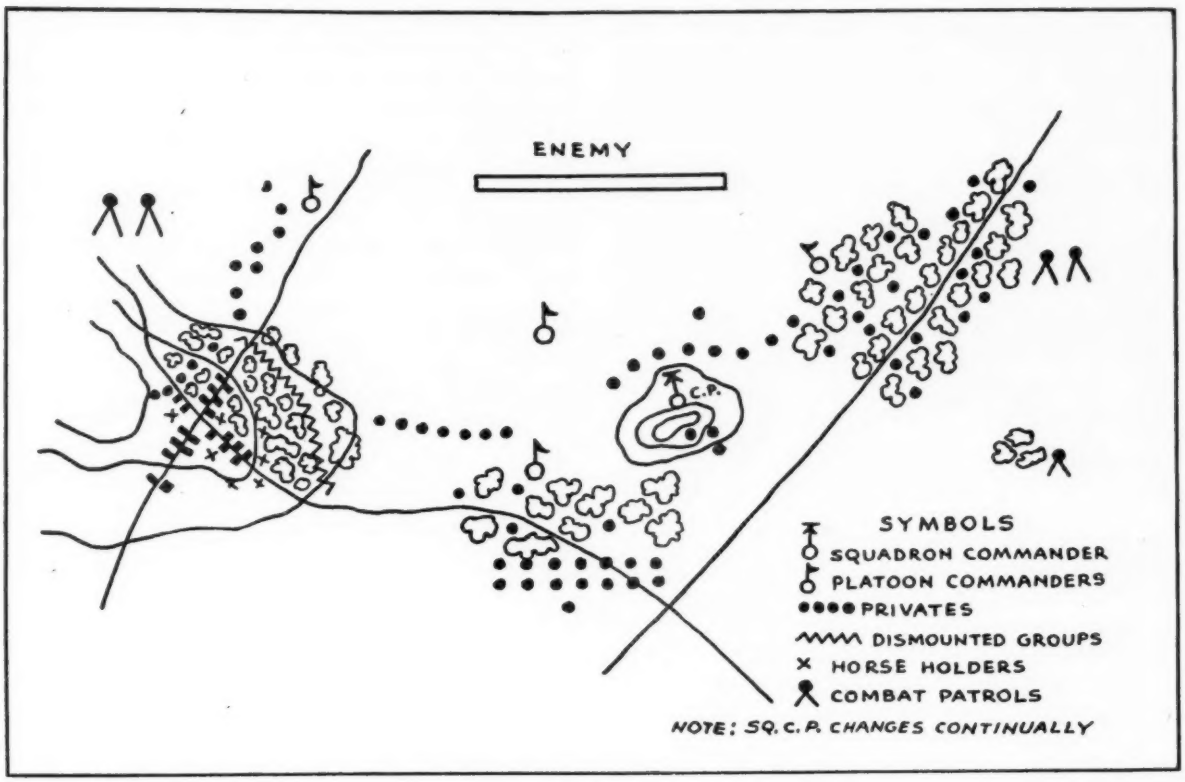


Chart 2.

factors which predicated the development of armored combat.

Outside of that, and general remarks indicating the tactical use of *lava* in defense as well as in offense, the regulations leave the rest to the initiative and resourcefulness of the commanders, who are given complete liberty of embroidering the tactical pattern on this broad canvas. Essentially, *lava* is an extended order of a squadron consisting of an advance line and support. It can be ordered out from any formation, line, or column, including marching columns, and it can be thrown forward to the front and to the flanks, by means of two or three simple commands, and in half the time necessary, for instance, to deploy a marching column or a close battle formation into the regular extended order prescribed by previously used Regulations.

Chart No. 1 gives an idea of the first stage of the deployment in this particular instance from a closed-rank battle formation. Usually three platoons out of four rush forward in diverging directions, next break up in two sections, and then disperse into a line as shown in chart No. 2. The shape of the *lava* when fully deployed is usually a crescent of varying depth, because its ultimate object, in offense as well as in active defense, is to strike at both flanks of the enemy. Most of its evolutions have one goal in mind—to work its way up to good striking positions for double envelopment.

The size and position of the support are also optional with the commander. The practice of leaving one platoon out of four as the support need not be adhered to. The commander may throw all four platoons in *lava* and leave a group of only eight or ten men, who in such a case would act, not as a reserve, but as a rallying point in case of necessity. In Cossack troops, therefore, this support, according to its size, was referred to as "reserve" or just "beacon."

Mounting or dismounting different sections in *lava* is also left to the initiative of the respective small unit commanders. As long as they strive to achieve the goal given to them by the squadron leader, they can use their own judgment entirely. They may dismount all of their group, or any section of it. They may send the horses back of the line with horse holders, or have the dismounted men lead their horses.

In Cossack regiments, horses were always trained to lie down at the command of the rider, so that their riders could use them as support for their rifles, practically as living breastworks. This expedient is resorted to only in cases of emergency, especially in defensive combat against superior forces. In this case "dismounting by circles" is frequently used. The horses of the squadron are made to lay down in a circle, thus forming an "island of resistance." More frequently, however, for such an emergency the groups composing the *lava* form separate circular defenses by the same method, and thus present a series of islands of resistance mutually supported by fire.

"Horses were always trained to lie down at the command of the rider so that their riders could use them as support for their rifles, practically as living breast works."

The most epic example of what such a dismounted *lava* can achieve in defense happened during the Russian invasion of Turkestan in 1864, and became a classic often cited whenever tactics of *lava* are discussed. A Cossack squadron of 98 men, cut off and surrounded by hordes of native cavalry whose numbers ran into thousands, turned its *lava* into several dismounted circles and held off the furious assaults of the enemy for almost three days. During these three days every horse was killed—riddled by bullets. Out of 98 men, 91 were killed or wounded, including all the officers, and the small handful of exhausted survivors were saved at the eleventh hour by the appearance of a relief force.

Lava Used by Squadrons

The evolutions of *lava* in offensive combat present a picture of continuous fluid shifts, with a gradual accumulation of striking force on the flanks; in other words, a series of plays and combination of plays as varied as the plays of a well-coached football team.

One of the most frequently used shifts, and therefore the best known, is the so-called "closing on the wings." The instructions for *lava* describe it as follows: "The platoons of the *lava,* in order to gain space to confuse the enemy, begin to retreat on divergent lines. On having thus uncovered the front of the support, they swiftly turn and rush to attack the advancing enemy, always closing on their march." (Chart No. 3.)

Substitute a concentration of antitank weapons instead of a support, and you will get an almost exact description of the famous Rommel tactics by which he lured the whole of the British armored force into an ambush on June 13, 1942, and annihilated 230 out of 300 tanks by the fire of the 88mm guns placed in the depth, and by the ensuing double envelopment attack of his tanks. The result of this defeat was the fall of Tobruk and the consequent retreat to the El Alemein line, which endangered not only Egypt but the Suez Canal. Many a war correspondent described this battle as one more manifestation of Rommel's tactical genius.

As a matter of fact, these tactics, thousands of years old, were used by the Parthians against the Roman legions, by Mongols during their invasion of Russia, and were practiced by the Cossack *lava* for countless generations. The first person to recommend their use in mechanized combat was General Fuller, who described this method in 1932 in his book, *F.S.R. III,* as "offensive counteroffensive."

It is sad to think that the main cause of this disaster, which endangered the life of the British Empire, could have been so easily prevented had exchange of military information between the Allies existed at that time.

Exactly the same tactics were used by the Germans on the Russian front as early as the summer of 1941, and in the fall of that year the famous 88mm dual purpose guns made their initial appearance under exactly the same circumstances. The Russians were victimized in the beginning, but only on a few minor occasions. They quickly recognized and catalogued these tactics because of their long familiarity. Every staff officer with a knowledge of tactics of all arms knew what a *lava* retreating and then closing on the wings could do to a rash adversary.

In the early spring of 1942—that is, four months before the disaster in Libya—a training pamphlet entitled, *What a Red Army Man Should Know About German Battle Tactics,* issued in hundreds of thousands of copies, described this mechanized ambush as follows:

"The German tank tactics show two tendencies. One is to lure our tanks into an ambush. The other

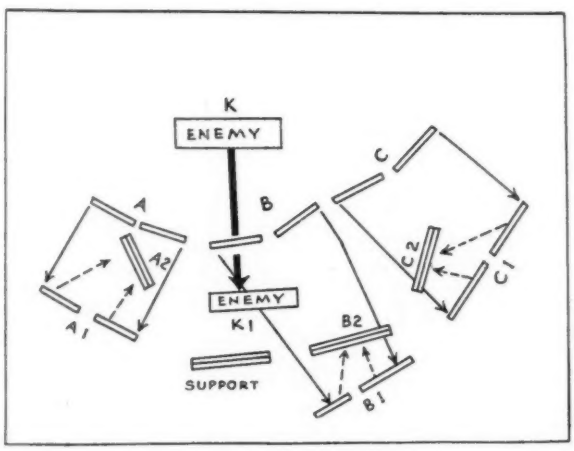


Chart No. 3

Retreat shown by solid arrows.
Closing on the wings—punctuated arrows.
Lava retreats: Group A to A-1, Group B to B-1 and Group C to C-1.
The enemy then advances from K to K-1; and the three groups, closing on the march, envelop his flanks by moving to A-2, B-2 and C-2 respectively.

is to turn and envelop them. The first move—drawing into ambush—is their favorite. It is done usually this way: On a certain section of their front, behind the lines, they mass a great force of artillery, mostly antitank guns. It has been observed that lately the favorite German weapon is the 88mm gun, designed as an antiaircraft gun, which is widely used by the Germans against tanks because the change from the antiaircraft firing position to the antitank position can be made in the space of two or three minutes. These guns, which the Germans call 'Flak Cannon,' made their first appearance on our front in the fall of 1941. They possess a high initial velocity up to 1300 yards a second. Their shells have a great armor-piercing strength, and are also incendiaries.

"Endeavoring to use this powerful antitank weapon to the fullest extent, the Germans constantly try to lure our tanks into ambush, and often stage a fake retreat, hoping that our pursuing tanks will follow into the trap and expose themselves to the 88mm guns. Sometimes this hide-and-seek game, in which only small German tank detachments participate, goes on for days. Avoiding a definite clash with our tanks, the small groups of German machines constantly maneuver in front of our lines, in the hope that some hot-headed tank commander, bored by this constant fencing, will finally succumb to the temptation and rush into headlong attack. They then quickly retreat, and if the reckless commander continues pursuit, his tanks seldom get back.

"These tactics make a thorough, continuous reconnaissance doubly important and necessary. Tank commanders must use all available reconnaissance means which should be carried out by the tank unit themselves; by infantry, aviation and engineers. Small scouting groups should constantly try to infiltrate into the German positions and learn as much as possible about tank and gun concentration behind their forward edge."

Drawing Number 3, taken from *lava* Instructions of 1912 illustrating the outline of *lava* as used by squadrons, adaquately depicts "Rommel Tactics" practiced by Russian cavalry under the name of "closing on the wings."

Lava Used by a Regiment

When it comes to the use of *lava* by a whole regiment, the similarity to the armored combat becomes even more pronounced. At the discretion of the commander, a six squadron regiment throwing from one to five squadrons into the *lava,* could place them in a single advance line extending from one to two miles, or in successive waves. The reserve squadrons were then usually kept in a more or less compact formation, as a powerful striking force which could be shifted to any point behind the *lava* lines. Again Russian cavalry tactics presented a tactical method frequently employed by large tank formations.

As might have been expected, in the First World War, cavalry in general, and the above described tactics in particular, played a rôle nowhere as prominent as in campaigns of earlier times, and *lava* lost its deadly sting. The reason, of course, was that, compared with other arms, *cavalry fell far behind in the strength of fire power.* Whatever fire power cavalry had was almost exclusively used in dismounted combat. To make the old tactics click again, a new combination of fire and movement was needed. And that did not appear until the Russian Civil War of 1918-1920 when machine guns, mounted on carts and ready for instant action, appeared in the cavalry ranks and started the rejuvenation of *lava.* These carts in the cavalry ranks also paved the way for the later inclusion of armored car elements, and thus constituted practically a preview of the tank-cavalry tactics so prominent recently.

American Civil War Cavalry

The second factor, which proved to be a powerful influence in the development of present tank-cavalry tactics was that of great raiding teams operating in the enemy's rear, striking at his nerve centers, and dislocating the resistance in whole areas. The idea of using cavalry not only as a frontal striking force, but as a raiding force as well, of course, always existed in Russia. The Mongolian invasion was the most gigantic cavalry raid the world has ever seen. For centuries the Cossacks defended the borders of Russia by countless series of incursions and forays into the enemy's territory. In 1760 a flying Russian column, operating in the rear of the Prussian army, captured Berlin and held it for a few days. The famous Russian "Partisans"—the guerrillas of the Napoleonic wars—constantly raided the territory of the French armies, although never on a scale large enough to bring any strategic results. Despite all this, the idea of cavalry raids was still rudimentary, and dismissed by many as a weapon mostly fit for guerrilla warfare.

This attitude changed entirely after the American Civil War.

As is well known, not much attention was paid to the American Civil War in Europe for decades after its conclusion, and for a long time it was the least understood war of the Nineteenth Century. The greatest military authority of that time, German Field Marshal von Moltke, contemptuously dismissed it as a "war of one armed mob chasing another—an experience from which nothing of value can be learned." The rest of European military opinion followed suit.

When the United States government issued the official records of the war, one set was thoughtfully presented to every military academy and war college in Europe. For years these volumes gathered dust on the shelves of the libraries—that is, everywhere except in Russia, where the impression created was tremendous. All important developments and trends shown by the war were noted—the passing of permanent fortresses;

the growing strength of field fortifications; and above all, the amazing exploits of the American cavalry and its rôle in the strategy of the war.

Here, the Russians saw the embodiment of all the principles on which the Russian cavalry was brought up, but realized on a scale and with a brilliance never even remotely attained before. As the dean of Russian military historians of that time, General Prince Golitzin, expressed it: "The Americans transmuted into reality the cavalryman's most celestial dreams, and our cavalry is the only one in Europe which can emulate them."

In 1875 a young officer of the General Staff, Colonel Soukhotine,[1] published a monograph on "Raids of American Cavalry in 1861-1865"—a brilliantly written work, and the first one of its kind in Europe which gave a clear and penetrating analysis of American cavalry tactics in the Civil War. They were, as he indicated, a grandiose development of vague and rudimentary Russian concepts on the rôle of cavalry in war. "For a decade now we have waited with impatience to see what the European military minds would say about this great campaign, and what they said amounts to precisely nothing. And that probably is the way it should be, as they are organically incapable of understanding the full implications and the meaning of the rôle which the American cavalry played in this war. It is left to us to carry on this glorious tradition on this side of the ocean. The American campaign is the incarnation and development of concepts and ideas which, though vague and rudimentary, have animated our cavalry for so many years. The American cavalry of the Civil War is the flesh of our flesh, our spiritual offspring, and our next of kin divided from us in time and space." The rôle of Russian cavalry in future wars, he thought was clearly outlined—cavalry finds its consummation in deep raids into the enemy's rear on a strategic scale.

The success of Soukhotine's work was sensational, and much more than academic. In the following year, during the large fall maneuvers, for the first time in Europe a cavalry raid, carefully fashioned along American lines, was staged. It proved to be entirely successful. After many discussions, the American word "raid" was officially adopted into the military language for lack of an adequate Russian word.

When the Russian-Turkish war broke out a year later, in 1877, several cavalry raids, also entirely American in concept and tactics, were successfully carried out, the most famous of them being the raid on Andrianople, a strongly fortified place which was captured by a force of 1,500 horsemen. These raids became minor classics, but Stuart, Morgan, and Sheridan still remained for every Russian cavalryman magic names and symbols of highest possible achievement.

In the '80's and '90's the American tendencies became so strong that the most influential figure in the Russian Army of this period, and one of the greatest educators that the army has ever had, General Dragomiroff, a military writer of great brilliance,[2] warned against regrettable excesses among the followers of the American school. He pointed out that *a distinction should be made between features that represent manifestations of the American genius, and those which were adopted by them only under the stress of necessity*. It was suggested, for instance, by many that individual training of riders could be almost entirely dispensed with because the horsemen of Stuart and Sheridan never saw the inside of a riding ring. The lack of individual training, Dragomiroff argued, was just a concession to necessity, not a freely arrived at system. "It isn't *that* which we should try to emulate; it is their spirit, and their broad and lofty tactical concepts."

He considered Stuart "an incomparable genius," and analyzing the battle at the Brandy Station, June 9, 1863, wrote: "What a marvelous episode! Stuart is attacked from the front; he is attacked from the rear. The enemy is superior in force; defeat and annihilation stare him in the face. How many commanders would have chosen the cautious, reasonable solution: to retire, to get out while the going is good. But Stuart has only one idea—to dash from one adversary to another, striking at each one in turn. He stays, he fights, and he is crowned with glory."

Two decades later, during the period of the World War, one of the first things taught in the Cavalry School by the professor of military history was that "any over-dressed young fool with guts and luck can become a small Murat, but Davidoffs[3] and Stuarts are born once in a century."

And so we see that this young and powerful American tradition continuously shaped the whole psychology of the Russian cavalryman up to present times. Young cavalry officers in other European armies dreamed of charges in close formation as of the highest consummation of their traditions and training. The Russian thought in terms of raids, break-throughs, and tornado-like rides into the enemy's rear. Why is it that none of these glorious dreams came to life in the Russo-Japanese and the World War campaigns? Reasons were many, but the two main ones were obvious: the lack of understanding of the power of modern small arms —the hopeless mishandling of machine guns, which were used in cavalry exclusively as an infantry weapon —and above all, the tragic dearth of true cavalry leaders.

The Russian Civil War brought the vindication. The cavalry played a most important, often a decisive rôle. The White Cavalry was by far the best and strongest in the first period. The cavalry raids of Wrangel, Mamontoff, and others did much to bring the Red Army to the brink of defeat. Then the pendulum

[1] In later years—General, Commandant of General Staff Academy.

[2] Dragomiroff's writings were recently republished by the Soviets, and his memory is highly respected in the Red Army.

[3] A famous "Partisan" of 1812, the originator of guerrilla warfare.

swung—the Soviets went to the horse, the Red Cavalry grew with amazing rapidity, and a year later Budenny became a world figure.

And so these two great influences, the tactics of depth imparted by Mongols, and the concepts of great cavalry raids learned from the American cavalry, result today in these tank-cavalry teams which, as the *New York Times* recently reported, "stunned the Germans with their speed and ferocity."

From tireless experimentation there gradually evolved various new tactical combinations for the new combat team. In this respect, the Russian front is practically a huge laboratory where new experiments are constantly being made and the results carefully checked, analyzed, and finally compiled.

An Early Tank-Cavalry Operation

One of the first descriptions of combining independent tank and cavalry forces on a small experimental scale was reported by Colonel N. Moskalik in *Red Star* in August, 1942.

A combined tank-cavalry unit was advancing towards a meeting engagement with a motorized infantry which had just succeeded in pressing back the Soviet infantry, and had occupied several fortified points. The combat team apparently consisted of one cavalry regiment and a tank battalion. The night was used for a concealed approach march, so as to be in readiness to strike at dawn. The marching formation is not described exactly, but is referred to as one which "enabled the tanks to deploy swiftly and to attack the enemy together with the cavalry right off the march."

Reconnaissance showed that the Germans had not had time enough to consolidate their newly won positions. One German battalion occupied the position in front of the railroad and parallel to it. Another battalion occupied the patch of woods on their left flank. Thorough reconnaissance made the whole picture sufficiently clear, and as later evidence proved, quite accurate.

It was decided to strike the main blow at the German right, because here their flank was practically open. Simultaneously with the main attack, one squad-

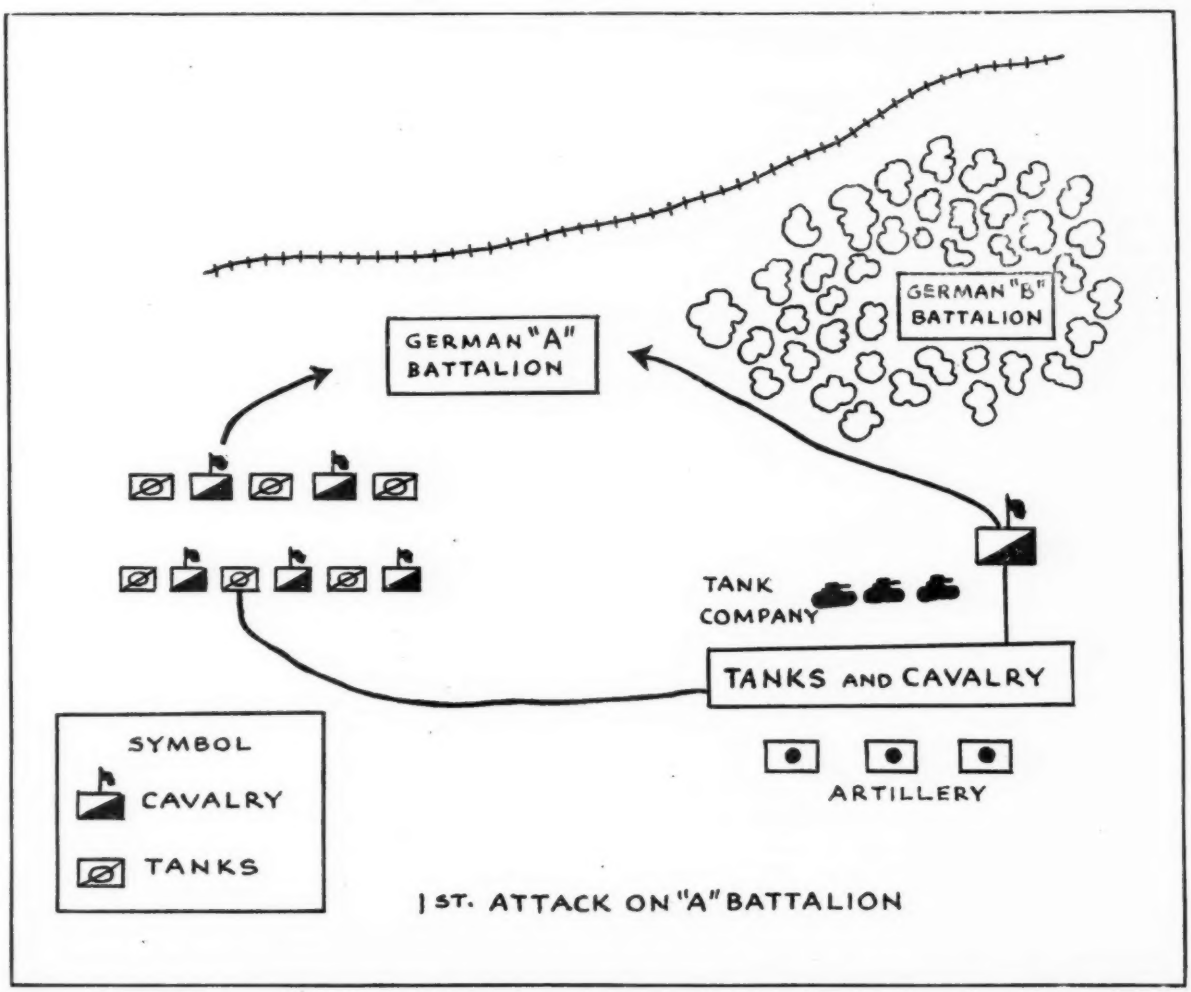


Chart No. 4

ron was assigned to penetrate through the German line at the junction of the two battalions, and strike at the left flank of Battalion A. Inasmuch as this squadron throughout the operation had to be exposed to a strong enemy fire from the woods occupied by the second battalion, it was decided to reinforce the squadron with one tank company. (Chart No. 4.)

The approach march was uneventful, and the prescribed battle order was achieved quickly and smoothly. The main force of tanks and cavalry, after describing a wide encircling arc around the German right, attacked them near the rear. Simultaneously the tank company, strongly supported by the bulk of the detachment's artillery, opened fire on "B" battalion occupying the woods. Thus the squadron advancing into the junction between the two German units was enabled to reach the left flank of "A" battalion almost without casualties.

After a stubborn engagement lasting almost an hour, the Germans broke and started to retreat. A quick regrouping followed, and the whole force attacked "B" battalion in the woods. By that time, it had been considerably softened up by the steady and punishing artillery fire, and gave way almost immediately.

The battle formation of the main force was as follows: The tanks advanced at intervals of twenty to thirty yards. The length of these intervals was calculated with the idea of giving each tank plenty of space for turns and change of direction without colliding with the cavalrymen. In these intervals were placed small groups of cavalrymen, five to seven men each. The formation consisted of two echelons; the distance between the assault echelon and the rear one was about half a mile. The account indicates that placing small groups of cavalrymen between the tanks proved to be very effective in cutting down casualties, as the tank armor protected these groups from the flanking fire of enemy machine guns. The formation described is practically nothing but a *lava* with the inclusion of mechanized elements.

When the assault echelon approached within a few hundred yards of the enemy position, the tanks (which suffered only a few casualties) rushed forward to the outer edge of the German defense and began to suppress the enemy's strong points. As soon as the first signs of uncertainty and disruption in the German fire system became manifest, the cavalry began to move up and finally charged in a crescent formation. Their attack seems to have been entirely successful, and more than two hundred German officers and men were cut down. Some of the enemy's strong points suppressed by tanks in the initial stage of the attack came to life again during the cavalry charge, and again were pounced upon by tanks.

The success of this engagement was mainly due to the perfect coördination between tanks and cavalry. The two arms kept abreast of each other, nobody fell behind, and their respective mobility was fully exploited at all stages. Further developing the initial success, the group reached the next German defense boundary, where they were met by an antitank defense of considerable strength. Here the tank casualties were considerably higher, but this boundary was also carried. The impetus of the attack, and the flexibility of the formation were such that the cavalry again was able to attack right after the tanks, and without dismounting.

In conclusion, Colonel Moskalik points out that even the best conceived maneuvers of tank and cavalry may come to grief without full measure of antiaircraft protection, especially in open country. Approach marches should be accomplished preferably at night, and troops should be thoroughly trained to disperse quickly. Measures of concealment and camouflage are especially important, particularly in bivouac periods. It is obvious that a well thought out system of supply, as well as the greatest possible attention to maintenance and repair are also of prime importance. Failure in organization, and especially failure to supply the tank-cavalry force with plenty of antiaircraft weapons and a quickly available support by fighter planes may mean a stalled offensive, and a corresponding loss of maneuvering ability.

Similar experimental actions in which different possible combinations of tanks and cavalry were tried out, were carried on throughout the summer and autumn of 1942 on all sections of the front.

The Tank-Cavalry Team at Stalingrad

Few people know that cavalry took part in the defense of Stalingrad, as well as in the counteroffensive that culminated the operation. Here, unfortunately, as on a great many other occasions, available information at this time is very scanty. One Soviet report says that one cavalry division, the Don Cossack Guards, operated throughout the seige in the southern part of Stalingrad. This district is practically a series of separate suburban and industrial communities strung out along the banks of the Volga, with stretches of open country in between. This whole section of suburbs is crossed with ravines and gulleys. Most of these settlements, some of them large and some of them just small clusters of industrial and private dwellings, changed hands several times.

The only available details concerning the participation of cavalry again indicate the same trend. The account repeatedly stresses the same formations as were used in the action described above. In attack, tanks, in the lead, usually tried to envelop the inhabited center and break into it at several points simultaneously. The cavalry *lava* followed the tanks, sometimes closely, at other times it came into action as much as one or two hours later. That apparently happened when resistance was particularly stubborn, and the German fire system proved to be extensive and well organized.

The account leaves no doubt that in all those combined cavalry actions, the squadrons were in mounted

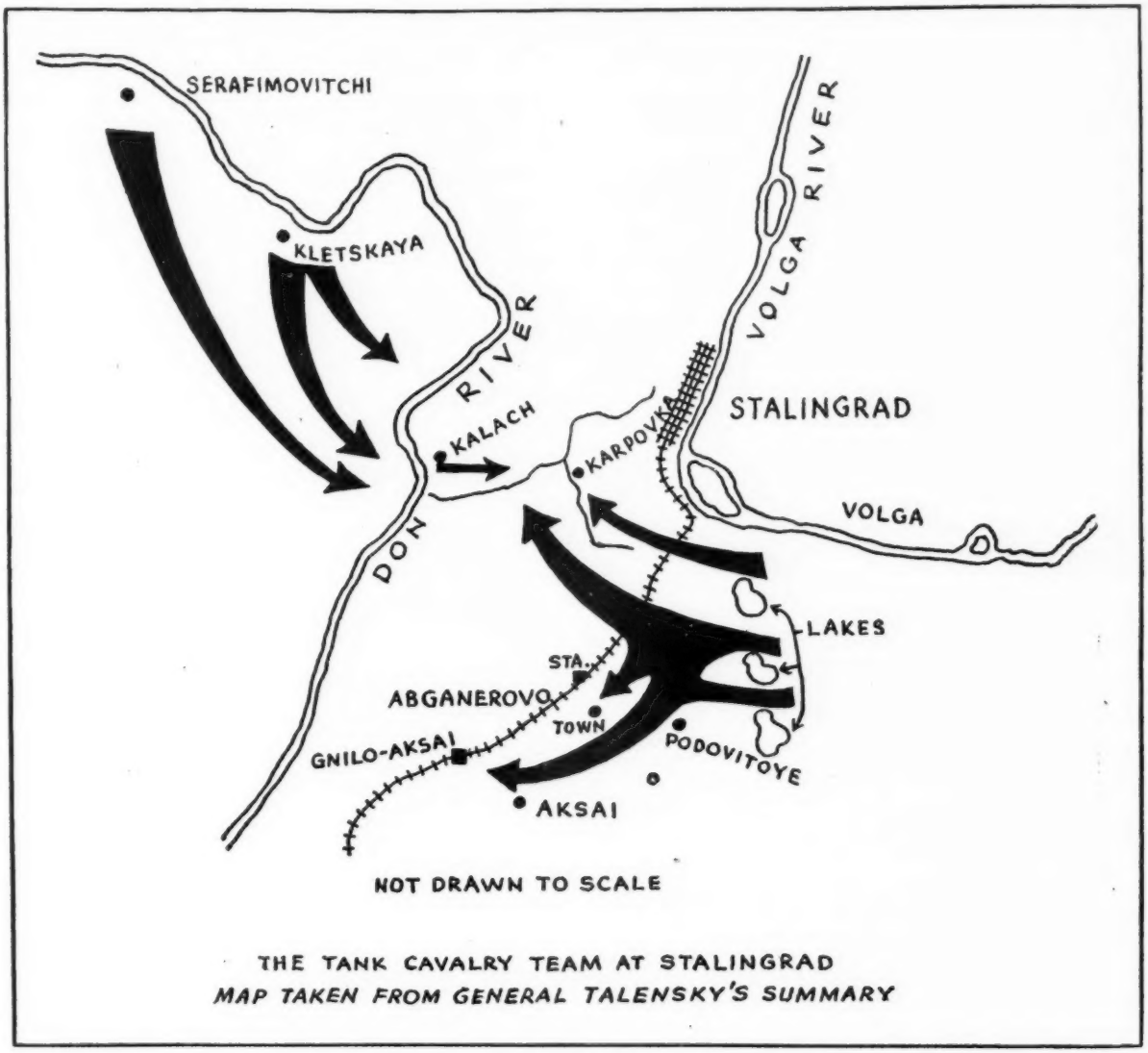


Chart No. 5

formation. After breaking into the settlement, the cavalry combat became mixed, some units dismounting and fighting from block to block.

All those experiments, closely studied and tabulated, finally shaped the structure of the combat team as it appeared on the first day of the Stalingrad counter-offensive, November 19th.

In its general features, the encirclement of the German Sixth Army at Stalingrad has already been described in these pages.[4] Since then, however, an important and authoritative account has thrown new light on the rôle of cavalry in this operation. There are many indications to warrant the impression that for many weeks after the November break-through, the rôle that cavalry played in the encirclement operations was deliberately hushed up in the Soviet military press. For instance, the account describing the actions of the First Guards Tank Corps, written by the corps commander, General Rodin,[5] never mentions the participation of cavalry in this most important operation. The *Red Star*, which reported the Battle of Stalingrad with a wealth of tactical details throughout its duration, also gave practically no information on the rôle of cavalry in the encirclement operations. The reason for this reticence is obvious. It was considered premature to disclose any tactical information concerning the structure and the *modus operandi* of the new combat team. There was every reason to believe that the German High Command would show an immediate and intense interest in the workings of this new combination. That is exactly what happened.

The first account, disclosing the structure of the two

[4] "Encirclement of Stalingrad," CAVALRY JOURNAL July-August 1943.

[5] Published in CAVALRY JOURNAL January-February 1943.

great pincers that closed on the German army, appeared in May, six months after the operation. It belongs to the pen of the editor of *Red Star* and official Soviet military historian, General Talensky, who usually summarizes the most important operations, and their strategic and tactical outlines.[6]

Here is what the account says: "The main blow was struck from the north from Serafimovitchi by the troops constituting the left flank of the southwestern front, and some troops of the Don front. The main maneuvering force on this wing was a mobile group consisting of three tank corps and two cavalry corps. The main blow on the left flank was struck by the southern group of the Stalingrad front. Here the striking mobile force was represented by two tank corps and one cavalry corps. The rest of our forces of the Don and Stalingrad front alike conducted aggressive actions of an auxiliary nature—holding operations designed to tie down the German forces to their respective sectors, and to dislocate their attempts to maneuver their reserves or to evade the blows of our flanking troops."

The account goes on to state: "On the morning of November 19th . . . the German front was broken through, and the mobile groups dashed into the enemy's rear. The southern striking force, annihilating several enemy divisions, reached the objective, the southern bank of the Karpovka River, on November 22nd. The northern group seized the Kalach bridgehead on November 23rd, and effected the junction with the southern group. The ring around the German army was thus closed."

There is little available information concerning the actions of cavalry of the northern group. The few sketchy accounts concerning the cavalry groups of the southern group, and the way its action was coördinated with those of the two tank corps composing the striking force, can be summarized as follows:

The strongly fortified German positions on the southern flank of the Stalingrad sector ran along the line of lakes in an almost straight north-south line.

The key to the whole position was two important heights behind the lakes. Both heights, as well as smaller hills adjoining them, were heavily fortified, and the defiles between the lakes (one, 8½ miles—the other, 4 miles wide) extensively mined.

Usual painstaking preparations took place before the attack. These included final war games in all units down to battalion commands. Cavalry commands down to squadron leaders participated in the war games at the tank corps headquarters, as well as in those played by staffs of different units.

A heavy fog hung over the battlefield when the artillery preparation started at dawn. It was very thick, and the visibility was much reduced when the attacking infantry, heavily supported by tanks, started the advance along the two defiles. The fog grounded the aviation completely.

After several hours of most stubborn fighting, the main zone was broken through, and shortly after 12 o'clock midday the tank corps went into the gap, with the cavalry following immediately.

After the collapse of their main defense zone, the Germans retreated steadily all day, while suffering heavy casualties under the relentless Russian pressure.

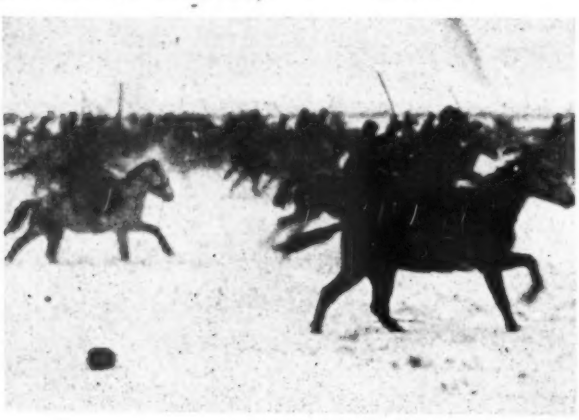
The first organized resistance was met at the large village of Plodovitoye, which the tank corps reached soon after darkness. The battle for this strongly fortified point lasted for several hours. Finally, the village was enveloped by two tank columns, while the third column attacked it frontally. By 11:00 p.m. the defenses were broken, and the mechanized columns entered the village.

Here the Soviet account stresses the fact that, after breaking into the village, the tanks lost no time there, and made no attempt to carry the fight to the finish. Their task was to disrupt and disorganize the defense; then leave the rest to the cavalry. It is easy to see how much the speed and impetus of the break-through were increased by these tactics. The tanks practically streamed through the village, and continued their advance on the important German base of Abganerovo. In their wake, cavalry swept into Plodovitoye from two sides, apparently with all squadrons in mounted formation. Many Germans were cut down, and 3500 prisoners and considerable booty taken.

The same tactics were repeated at Abganerovo, a few hours later, shortly before daybreak. Two pincers closed around it, from north and south, at the same time that a frontal tank attack was being launched. This time, each pincer had two arms—one consisting of cavalry; the other of tanks (see map).

Again, tanks demoralized the defense and went on their way, while cavalry converged on the station and the town from all sides. Here many Germans were cut down by cavalry sabers, and several hundred were captured. The encirclement, however, was not complete.

[6]Summary of the Stalingrad Battle (August 1942-February 1943) by N. Talensky in Issue Number 5 of *The Bolshevick*.



Battle scene from official war film "City That Stopped Hitler" shows cavalry in action south of Stalingrad, where it was used with tanks to form the southern pincer.

A part of the garrison (consisting of one infantry regiment, strongly reinforced with artillery) escaped along the two roads leading west.

Several squadrons of cavalry were immediately ordered to overtake the retreating column and cut it off. This was successfully carried out, and the whole column surrendered.

The tank corps in the meanwhile, advanced along the railroad to the station Gnilo-Aksayskaya, which was taken in the morning.

The station of Abganerovo yielded a rich booty—several hundred railroad cars and trucks loaded with supplies, over 100 guns of all caliber, and several ammunition dumps. The total number of prisoners taken in these operations ran over 8000. Three German divisions were completely smashed.

This is as much as has been released about the initial operations of the tank-cavalry team. The results, however, are known to the entire world. The debut of the new "constellation," in view of the strategic results achieved by this operation, can be classified as a complete and unqualified success.

German Emulation

The impression produced by the new combat team on the German High Command was instantaneous and profound; of this there could be no doubt. It became an object of immediate study, and their first attempt to reconstruct and duplicate the new tactics followed within a month.

In the middle of December, the Germans began to prepare the counterblow designed to relieve the encircled Sixth Army. The relieving force, under the command of Field-Marshall von Mannstein, was concentrated in the district of Kotelnikovo. The same official Soviet account of General Talensky gives the composition of the German striking force as follows: Two panzer divisions, two cavalry divisions, four infantry divisions, and special reinforcement groups. The structure of this shock group, which was given this strategically most important assignment, tells the story clearly.

It is the first known instance in the history of this war where the Germans used two cavalry divisions massed in one force, and the proportion of tanks and cavalry shows an obvious attempt to reincarnate the tank-cavalry teams which caused the initial disaster of the Sixth Army. They were, as is known, unsuccessful, and the von Mannstein group, after a considerable initial advance, was first stopped by Russian counter-attacks and finally completely smashed and thrown back to Rostov.

Almost simultaneously, other reports from different sectors of the huge front indicated similar German attempts to duplicate the new combat team. One of them, and a particularly stubborn one, was made under circumstances similar to those just described. In the latter part of December, trying to break through the Russian ring encircling Velikie-Louki and relieve the hopeless situation of that besieged garrison, the Germans used for the first time on this sector the combination of independent tank and cavalry units, although on a comparatively small scale. The Soviet account written by the well known tank expert, Major Slessareff, states: "A strong German break-through attempt was made southwest of Velikie-Louki. . . . Here they repeatedly used tank units combined with several squadrons of cavalry. These attacks designed so as to combine surprise and speed, followed in waves, and these combined formations were thrown into attack, sometimes several times a day. They were broken up by our powerful concentration of artillery and trench mortar fire."

There could be little doubt that the comparatively limited and so far unsuccessful German attempts to recreate the Russian tank-cavalry tactics were handicapped by an insurmountable weakness—*the lack of horse cavalry*. The significance of the new tactical development was apparently grasped by the German High Command immediately, but to develop their own combat teams of this nature proved to be impossible, as one of the two elements was woefully inadequate.

The other conclusion which also seems to be proven beyond a shadow of doubt is that this powerful new team should be studied and scrutinized as closely as possible. The results seem to be well worth while, and new proofs are accumulating daily. As brought out earlier, the United States cavalry, more than any other, has a vital interest in these developments. History, as it was often said, repeats itself. It also sometimes reverses itself. No one has more right than the United States cavalry to greet the new constellation on the tactical horizon with the same words as, three generations ago, were used by General Soukhotine: "They are the flesh of our flesh, our spiritual offspring, and our next of kin, divided from us in time and space!"

NAZIS SEEK CAVALRY RECRUITS

Stockholm, Jan. 2, 1944 (AP).—A dispatch today said members of the Hitler youth organization were being urged to join the German army as volunteers, indicating anew the Reich's need for recruits. The dispatch said it was learned that 15-year-old members of the Jugend (youth organization) were being trained in cavalry units for front line service when they become 16.

Germany is reorganizing her cavalry, a move which apparently reflects the Russian's effective use of mounted troops on the Eastern Front.

When Naval Guns Support

ONE of the striking features of World War II, which has seen the development and use of amphibious warfare on the largest scale, has been the greatly increased use and efficiency of British naval gunfire in support of the Army ashore. In World War I, naval gunfire was used in support of the Gallipoli landings and in bombardments of the Belgian coast, but the whole technical development was still in its infancy, and amazing strides have since been made.

Naval Characteristics

Guns. Naval guns differ from Army guns in that they are of high velocity and low trajectory, which make them less accurate on a pin-point target. To a certain extent, this has been overcome by the introduction of smaller charges known as bombardment charges, which give the trajectory more of a "howitzer" effect and considerably reduce the wear of the gun.

Ammunition. Further, the ammunition which a ship can carry is necessarily limited. Warships obviously carry normally a high proportion of anti-ship shell and only a small proportion of the H. E. shell suitable for use against shore targets. For specific operations, where interference from enemy surface forces is unlikely, a much higher proportion of H. E. shell can, of course, be carried. The type of shell to be used depends on the type of target to be engaged. Normally, for the larger caliber guns H.E. will be the best, but in special circumstances armor-piercing shell will provide the best answer.

In the bombardment of Tripoli early in 1941, *Warspite* and *Barham,* which were engaging buildings, used 15-inch H.E. shell. *Valiant,* firing on underground oil fuel tanks and the underground shelters of the Italian Naval Headquarters, used 15-inch armor-piercing shell. A satisfactory fire, billowing up as the fleet steamed away, testified to the accuracy and efficacy of this fire against the oil fuel tanks, and it is interesting to meditate on the feelings of the Italian Naval Staff in their shelters, on the unexpected arrival of a 15-inch shell.

Navigation. The control of naval gunfire against shore targets is complicated by the fact that, because of submarine and air menace, it is rarely, if ever, possible for the bombarding ship to anchor or remain stopped; she must be under way. When the target engaged cannot be seen from the ship (and most targets are of this type), arrangements must be made for the guns to be trained initially on a bearing worked out by the navigator. This bearing and training of the guns must be kept continually corrected by the change of bearing caused by the ship's movement. Similarly, the range must be calculated and kept up to date.

Coördination With Land Warfare

Air Observation. Although modern scientific aids have increased the accuracy of navigation, the ship's observed positions alone can rarely be relied on to give the requisite accuracy to hit a target some miles inland. Observation of fire is also necessary. In the early stages of a British seaborne assault, when enemy positions on shore are bombarded before friendly troops have landed, this observation must be done from the air. Once one's own troops have got ashore, observation of fire can be carried out by army officers ashore, known as forward observation officers.

In both these types of observation of fire, great strides have been made. Air observation has, up to date, normally been carried out by the Fleet Air Arm, using either carrier-borne or ship-borne aircraft—the *Swordfish* and the *Walrus.* Where strong fighter opposition may be expected, however, spotting will have to be carried out from faster planes than these.

The Forward Observer. Observation by forward observation officer (F.O.O.) parties ashore has been greatly developed. An organization has been set up in Britain, under the control of Combined Operations Headquarters, whereby army Royal Artillery officers are trained as F.O.O.'s for the observation ashore of naval gunfire and as bombardment liaison officers (B.L.O.'s), for artillery liaison on board bombarding ships. This organization has already been used in all major seaborne assaults, including Madagascar, the North African landings, Sicily and Italy, and has worked well.

Liaison. Each bombardment unit has a small headquarters staff commanded by a lieutenant colonel, Royal Artillery, who is the chief bombardment liaison officer (C.B.L.O.). The troops, each of which is designed to provide observation of fire on a divisional front, consist of about seven bombardment liaison officers and seven F.O.O. parties.

In Sicilian and Italian operations, where, after the initial landing, the advance was along a coast line, naval bombardment has been extensively used in support of the army advance, and the need has arisen for transport for these F.O.O. parties. In the early days of the Sicilian operation this had to be improvised, and several cases occurred of F.O.O. parties going forward mounted on donkeys borrowed from the local population. Vehicles are now being supplied for all F.O.O. parties.

★On Naval Staff of Combined Operations H.Q., London. Gunnery officer of the battleship *Valiant* from outbreak of war to April, 1942, with a short spell in the cruiser *Dido* in Spring, 1942. Service in the Norwegian campaign. Awarded D.S.C. for action at Cape Matapan. Took part in bombardments of Bardia, Tripoli, Valona and Rhodes.

ort the Army

*by Commander J. H. Unwin, D.S.C., R.N.**

The support provided by naval gunfire on land can be divided broadly into three classes:

1. Bombardment of enemy shore positions where no friendly troops are ashore.
2. Bombardment in support of a seaborne assault.
3. Bombardment in support of an army advance along a coast line.

1. Where No Friendly Troops are Ashore

The first of these three types is a straightforward application of shore bombardment with air observation.

Examples of this type of fire come mainly from the Mediterranean. One typical case was the bombardment of Tripoli, already quoted. General Wavell, because of the diversion of a large part of his available forces to Greece early in 1941, was having to retire from the forward places he had captured during his first victorious advances, and the object of naval bombardment was to cause as much destruction as possible to this main North African enemy supply port.

Another such example was the bombardment of Rhodes by the 15th Cruiser Squadron early in 1942. This action was designed principally as a diversion from the main land battle in North Africa. Here the 15th Cruiser Squadron and destroyers bombarded a flour mill and other targets on the island in a night bombardment carried out by using flare illumination and direct and aircraft spotting.

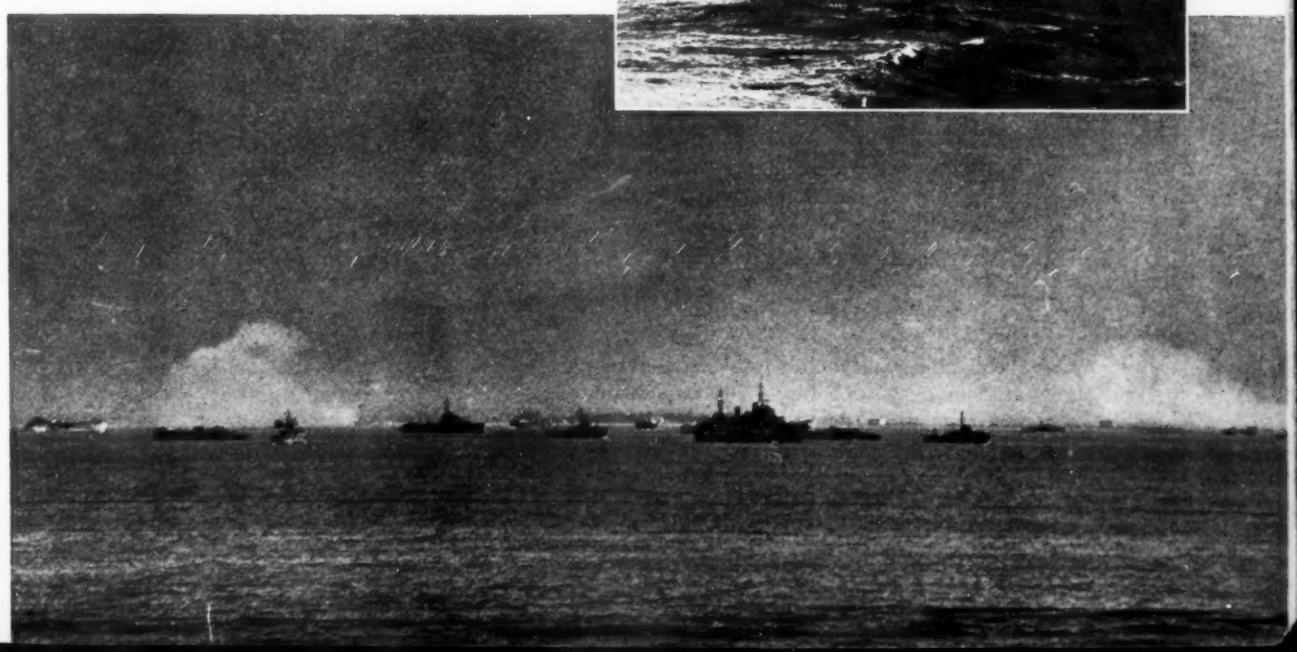
A third example was the bombardment of Valona by the battleships *Warspite, Barham* and *Valiant* at the end of 1940. Valona was then one of the two main Albanian ports used for supplying the Italian forces fighting in northern Greece. The battle fleet, carrying out an indirect night bombardment of the port, fired at a range of about 26,000 yards over a 3,000 foot moun-

Having escorted the Allied landing forces to Salerno Bay, British and U. S. Warships put up a terrific supporting bombardment against the well established German shore batteries and entrenchments. This naval bombardment continued throughout the bitter fighting that followed the landings.

Right: The 33,950-ton British battleship, H.M.S. *Nelson,* fires her 16-inch guns.

Below: British warships bombard enemy positions on the beaches of Salerno, where German tanks were engaged with "good success."

British Official Photos



Central Press Photo, Ltd.

The great guns and armored superstructure of H.M.S. *Warspite*, now one of the most powerful warships afloat.

tain on an island covering the bay. Because of bad weather, aircraft spotting was not possible. A predicted area shoot, based on an observed position obtained from land bearings, was therefore carried out.

2. Supporting a Landing

Naval bombardment in support of a seaborne assault may be divided into three phases:

a. The period immediately preceding the first assault landing.
b. Support of the landing and the advance up to the capture of the initial covering position.
c. Support of the advance inland, or of the fight to retain the covering position.

Before the Landing. In the first of these periods—that immediately preceding the first assault landing—there will be two main tasks, the neutralization of all enemy batteries covering the seaward approaches and the beaches, and the neutralization or destruction of all enemy defenses on or covering the beaches.

The first of these tasks will have to be carried out mostly by indirect fire with air observation, either under cover of darkness with flare illumination, or by day from outside the range of the enemy shore batteries, or with the bombarding ship screened by smoke. Anything in the nature of a duel between the bombarding ship and the shore battery must be avoided. History has shown that because of the very small size of the shore targets, the low accuracy of Naval guns against pin-point targets, and the large relative size of the ship as a target, the odds in such a duel are in favor of the shore battery.

There have been many instances of the successful neutralization of enemy shore batteries by warships: notably, by *Bermuda* of the C Matifou Battery during the assault on Algiers; by *Rodney* of the du Santon Battery during the assault on Oran; by *Nelson* and *Rodney* of the Regio Batteries overlooking the Straits of Messina (these batteries were outside the range of cruisers' guns); and by *Abercrombie*, a 15-inch monitor, during the assault on Gela, Sicily. In this last case a British monitor, supporting an American landing, was using American F.O.O.'s and American F.O.O. procedure. In certain cases, too, batteries have been neutralized by direct fire by destroyers steaming close inshore.

The second task—the neutralization or destruction of enemy defenses on or covering the beach—can be carried out either by specially armed guncraft close inshore; by destroyers close inshore; or by larger ships, either by direct fire on the flanks or by indirect fire over the heads of the infantry in their assaulting craft.

Landing and Initial Advance. During the second of these three main periods in support of a seaborne assault—the landing and advance up to the capture of the initial covering position—the nature of naval support fire changes to engagement of the inland targets by indirect fire. Great care is necessary to avoid endangering one's own troops. F.O.O.'s will be established ashore as soon as possible. Until this, all observation must be from the air, but once F.O.O.'s are ashore, the quality of Naval supporting can be expected to improve. Targets will be mainly of the nature of direct fire on the flanks, counter battery, and harassing fire on inland areas known to contain concentrations of enemy vehicles or personnel.

Advance Inland. During the third period—support of the advance inland or of the fight to retain the covering position—naval gunfire, using F.O.O. spotting, will tend in the main to engage inland area targets in indirect fire. If the fight for the covering position is protracted and violent, however, more aggressive fire will be necessary, and naval gunfire can be of infinite value.

Good examples of this can be seen in Mediterranean operations: notably, in the engagement by the U.S.S. *Savannah* and other cruisers and destroyers off Gela

This German mobile flak gun, used in action against Allied landing craft, was knocked out by Naval gunners supporting a landing in Italy, September, 1943.

British Official Pho

in Sicily, when German tanks broke right through to the beaches and were stopped and routed by 6-inch fire from the cruisers; and by naval gunfire, in support of the Salerno landing, which culminated in the bombardment close inshore by the battleships *Warspite* and *Valiant*. In Sicily, during the advance inland from Scoglitti, a U.S. destroyer, providing supporting indirect fire, engaged two tank targets in quick succession. Three salvos were fired at each target, the third of which hit in each case. F.O.O. reports were: first target, "Very nice"; second target, "Many tanks destroyed."

Diversion. The other type of fire in support of a seaborne assault which has not yet been mentioned is fire on some area well away from the scene of a main landing, designed as a diversion so as to confuse the enemy of the attackers' intentions and to delay him committing his reserves. Such an operation was carried out by the battleships *Howe* and *King George V* when they bombarded Trapani at the western end of Sicily in the early stages of the Sicilian landings.

3. Advance Along a Coast Line

Naval support of an army advance along a coast line may take many forms, and is usually a combination of the types of fire already discussed. This fire may take the form of direct support of advancing troops, (i.e., neutralization or destruction of enemy strong points or defended areas holding them up); alternatively, it may be direct or indirect bombardment of his lines of communication, or of his reinforcements or of his retreating troops, or of dumps and supply bases. All types of fire will probably be required. Indirect bombardment with F.O.O. spotting will be used for targets close to the attackers' own lines. Indirect bombardment with air observation may be required for targets farther afield. Other cases may occur where direct fire close inshore may be possible.

In December, 1940, during General Wavell's first advance into Cyrenaica, Bardia had been by-passed and invested with two or three Italian divisions inside. When the assault was mounted, the plan of attack was for the spearhead to force the defenses and drive straight to the town in the south of the defended area. Up to two Italian divisions were encamped in the northern half of the defended area, and any formed attack on the flank of the British spearhead as it drove forward to the town might have had disastrous effects.

Admiral Sir Andrew Cunningham, Commander in Chief of the Mediterranean Fleet, at once proposed the intervention of the British Battle Fleet. In consequence, as the land assault developed, the *Warspite, Barham* and *Valiant*—the "great ships" as Mr. Winston Churchill likes to call the battleships—opened fire with their 15-inch guns on the northern area. The effect was tremendous. The Italian divisions were at that time beginning to form up for the counterattack. When the naval gunfire started, they at once went to ground and appeared only the next day to surrender.

The landing (at Gela) might have met with disaster, but at some point, word of the enemy attack reached a destroyer off shore, and the naval guns were turned into the tanks. It is not known how many tanks were knocked out in this manner, but the destroyer continued pounding the tanks until dark, when the division made a counterattack and pushed the enemy back. A later count disclosed that 84 enemy tanks, 14 of them "tigers," were knocked out in the olive groves around Gela.

***—"U. S. Seventh Army in Sicily"*—The Cavalry Journal, September-October, 1943.**

Again during General Wavell's first advance into Cyrenaica, the retreating Italians had to pass along a single road close to the shore immediately before reaching Sollum. This road was kept under almost continual bombardment by destroyers and old Yangtse River gunboats lying close inshore, and heavy casualties were inflicted. When the gunboat *Aphis* was bombarding, she was so close inshore that even the stokers off watch came up armed with rifles to join in the fun.

Before Bardia was captured early in 1941 the small port was continually bombarded to ensure that no enemy escaped by sea. At one time, the gunboat *Ladybird* went so close inshore that the Italians could not depress the coast defense guns far enough to hit her. In the words of the Admiral in Command, who was lying outside, "From the noise and explosions heard it was obvious that *Ladybird* was having a good time."

Again in the North African campaign, naval bombardment was used on this narrow coast road to hold up advancing panzer divisions, and great destruction was wreaked among the tanks. At one particularly vital time, the German advance was completely held up for 24 hours. Great execution was also done among tank "laagers" and dumps at night by cruisers using indirect fire. From spotting, provided by naval aircraft, the targets were found and illuminated.

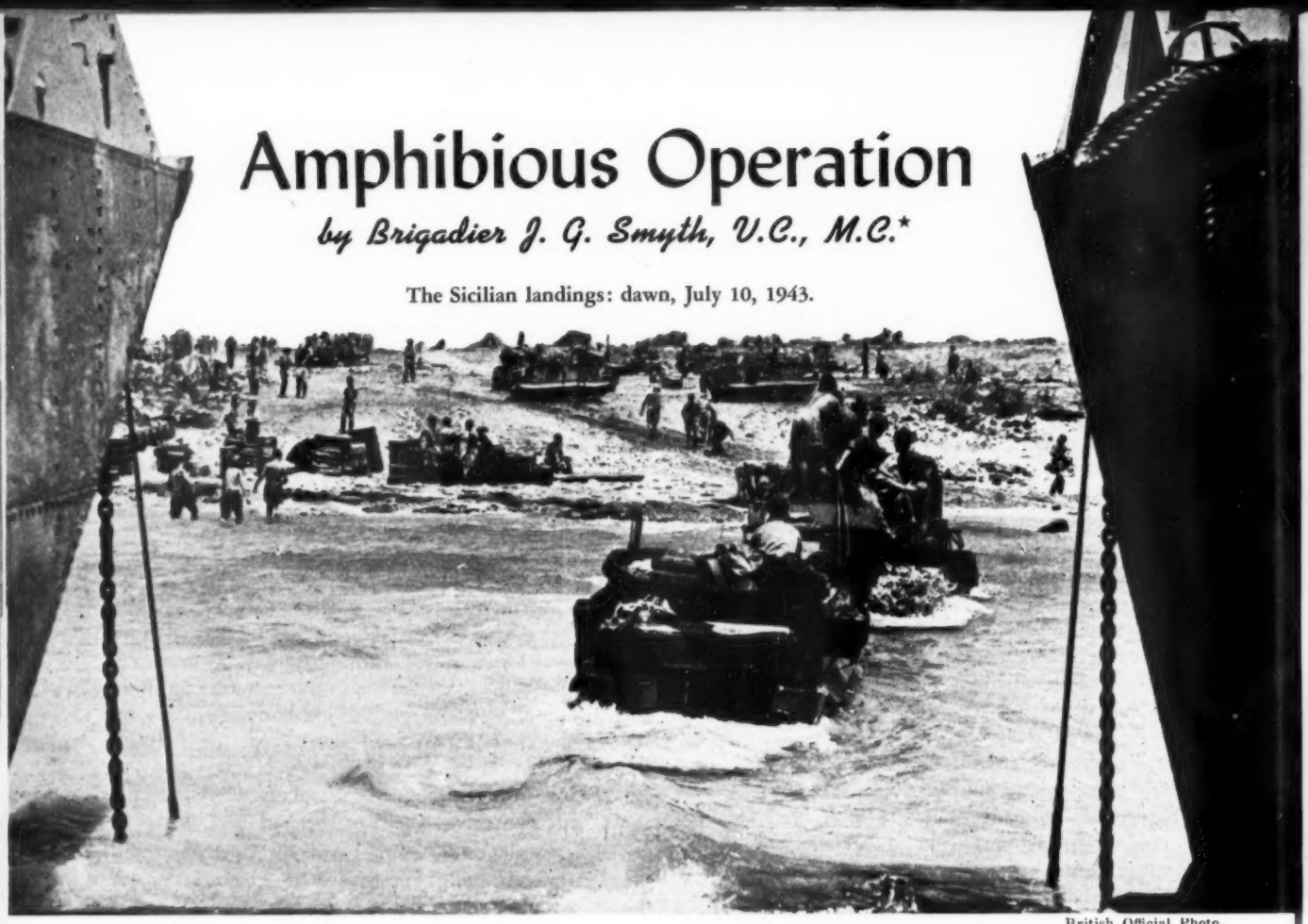
During the Sicilian campaign, fire by the *Roberts*, a 15-inch monitor, blocked the railroad and coast road at Taormina by causing a landslide.

Fine examples of this type of bombardment have occurred in the Aleutians, where battleships, cruisers and destroyers were used, and in the Solomons, where, because of the deep jungle, most bombardments were carried out in direct fire at close range. In the Solomons, U.S. Marines had captured Gavutu Island, and were attempting to capture Tanambogo Island, connected to it by a causeway, but were being held up by heavy machine gun fire. A destroyer closed Tanambogo Island and opened heavy fire at close range. The machine gun fire ceased, and the Marines, advancing over the causeway, captured the island.

Amphibious Operation

*by Brigadier J. G. Smyth, V.C., M.C.**

The Sicilian landings: dawn, July 10, 1943.



British Official Photo.

THERE is no operation of war that requires more careful planning and thorough preparation than a combined, or amphibious, operation.

The reason is not difficult to find. An amphibious operation involves the close coöperation and coördination of all three services—the Navy, Army and Air Force. Moreover, it is always a hazardous undertaking. There are so many ways in which it may go wrong, any one of which may result in entire failure.

A land operation may fail in several places, and yet succeed if a successful breakthrough is effected in one place. An amphibious operation against a hostile shore can succeed only with detailed planning, some element of surprise, and well trained troops.

The Japanese made great use of sea landings in their conquest of Malaya and Singapore in the present war. The troops taking part had undergone at least a year's special training at Formosa and Hainan before they undertook these landings.

Preparation and Equipment

The first requirements for a successful amphibious operation are sufficient shipping and specially designed self-propelled landing craft to put troops, tanks, guns and equipment ashore in adequate numbers to overcome the beach defenses and establish themselves firmly in sufficient depth inland.

Naval supremacy must be assured at least in the actual area of operations. Air cover must be given to the ships in transit and to the troops at the difficult time of disembarkation on the beaches. It must be continued during the following period, when all surprise is at an end and a mass of shipping is standing offshore ready to land reinforcements and heavy equipment.

The landing area must be chosen carefully. It must contain beaches at which landings are possible but which are not too obvious. It must certainly contain two or more ports at which heavy equipment and supplies can be landed after the beach landings have been made good. These ports will almost certainly have been put out of action by the enemy and it will take some days to get them going again. Most of the dock facilities will probably have been destroyed beyond repair and will have to be replaced.

All the above points have to be considered and allowed for in making the plan.

Troop Training and Assembly

It is assumed that the objective has been decided upon, that the necessary shipping is available, that landing craft of the necessary type and in sufficient quantities have been constructed and that the essential sea and air supremacy in the area of the operation can be assured.

*Brigadier Smyth was for four years in the Training Directorate at G. H. Q. India, and for three years an Instructor at the Camberley Staff College before the war. During the war he has commanded a brigade at Dunkirk, a division in India, and a division in Burma at the time of the Japanese invasion.

The next step is to provide troops for the operation and to put them through an intensive course of training. There are now highly trained Naval officers and ratings whose special task it is to train the troops in the use of boat and barges and in embarking and disembarking.

It is always difficult to keep such training secret and not give away the fact that a big seaborne expedition is impending.

The expedition then has to be assembled at ports within striking distance of the selected objective. The nearer these ports are to this objective the better, both from the point of view of fighter cover and the length of the sea voyage. In the invasion of Sicily, fighters based on Malta and Pantellaria could cover most of the island.

A short sea voyage is advantageous from many points of view. In certain cases it may even be possible to take the troops across the whole distance in their landing craft. For this, however, a short sea voyage and a calm sea are necessary. Usually the troops will have to start in transports and tranship to their landing craft at a later stage.

If the voyage from the assembly ports to the objective is so long that it cannot be completed within the hours of darkness of one night, then it is almost certain that the expedition will be spotted and all further surprise will be lost.

Sea and Air Mastery

The next step is to gain sea and air mastery over the area in which the operation is to take place. In the case of Sicily the Allied fleets had established a complete naval supremacy in the Mediterranean. This supremacy was so complete that the Italian fleet never dared to issue out to dispute it.

The Allied Air Forces then set about gaining air superiority. This they did by concentrated air attacks on all the Sicilian airfields. At the same time, they kept up a degree of surprise by bombarding other targets. Their methods were so successful that the enormous convoy of some 3,000 ships made the voyage practically unmolested and undetected.

Success was due to the observance of that old principle of war, *concentration of superior numbers at the decisive point,* and to *the close coöperation of all three Services—Navy, Army and Air Force.*

Needless to say, a deep study has to be made of tides and weather and of every navigational problem that may arise. A slight miscalculation may throw out the whole plan.

Airborne Troops

The next point that must be considered is the use to be made of airborne troops and how and when they are to be landed. It will be remembered that the Germans captured Crete with airborne troops alone, but they suffered heavy casualties, even with no fighter opposition against them.

In Sicily, parachute and gliderborne troops landed under cover of darkness before the main sea convoy. Their task was to capture vital points behind the beach defenses and to hamper the movement of reserves.

Embarkation and Naval Protection

The troops embark on their transports with their landing craft loaded in the same ships. The question of loading ships for an amphibious operation is an extremely important one. Cases have been known in the past where heavy stores were loaded on top of the lifting gear, without which they could not be unloaded. The ships have then had to return to the port of embarkation for re-loading.

At the given time, under cover of darkness, the expedition sets sail.

British infantry wading ashore from landing craft at a Sicilian beach. Note guide rope.

British Official Photo.

The next phase is entirely a Naval one. It consists of the assembly, protection and navigation of the convoy. The larger the number of ships, the more difficult these problems become, and this limits the size of the force that can be employed.

The transports arrive off their objectives early in the morning while it is still dark. The landing craft have to be got into the water; then the men embark. Unless the troops are very highly trained, this is a difficult business at any time; unless the weather is good and the sea calm, it is a difficult business for any troops.

Establishing the Beachhead

Under cover of intense sea and air bombardment the landing craft approach the beaches. This is the first critical point in an amphibious operation—getting the first flight of the infantry landed successfully. It only needs unexpected obstacles, covered by unlocated machine guns, to cause such heavy losses among the landing craft that the troops either cannot land at all, or they land in such bad shape and such small numbers that they are unable to advance inland.

Pioneers and Royal engineers wade ashore in Sicily, July, 1943.

British Official Photo.

It will be remembered that there were several such instances in the Gallipoli campaign. In Sicily, however, the Italian troops responsible for beach defense put up so little resistance that all the landings were carried out successfully with little opposition.

After landing, the leading troops must advance inland as quickly as possible and form a bridgehead, under protection of which weapons, supplies and the remainder of the force can be landed.

By this time it will, of course, be full daylight. The Air Force turns its attention to strafing all communications leading to the beaches and to keeping as complete as possible an air umbrella over the attacking troops. The captured beaches are organized by previously detailed beach parties; and tanks, guns, ammunition, etc., are got ashore as soon as possible.

Captured ports have to be examined and immediate steps taken to put them into working order, as it is impossible to land the heavy stores, heavy guns and equipment, which a modern army requires, on open beaches.

Here again, in Sicily, the Italians failed to sabotage the port installations before they withdrew.

Enemy Reserves

Now comes the second critical period in an amphibious operation. The enemy reserves, complete with all their equipment and weapons, move forward to counter-attack.

The invaders still will be without most of their supporting weapons and will be operating in country unknown to them but well known to the defense.

As the advance progresses still further inland, it will become essential to capture and establish airfields. Otherwise the bombers will be out of range of fighter cover and will be at a disadvantage as compared to the defending Air Force.

Conclusion

From this brief survey of the main problems attendant on any amphibious operation, the immense complexities of this form of warfare can be realized.

The invasion of Sicily was to date, the biggest amphibious operation of all time. It was a triumph of careful planning and closely coördinated execution which was all the more creditable, since the forces of three nations were concerned.

It must be remembered, however, that the Italian troops did not contest the landings nor did they put up serious opposition inland. Had the beach defenses been manned by German troops the difficulties might have been greatly increased.

General Hawkins' Notes

The Suppression of Cavalry

AS the fateful year, 1944, begins for the world, the people of the United States are looking forward optimistically to victory within the year. The naval and military successes in the islands of the South Pacific, during the last sixteen months, and the successful land operations in North Africa, Sicily and Italy, have brought about much of this optimism.

Particularly, the following three operations have set afire the hopes of the United Nations for victory over the Axis Powers.

First, the remarkable success in winning the Battle of the Atlantic over the German U-Boats.

Second, the operations in the air which have gained for Great Britain and the United States a marked supremacy over Germany and Japan in aerial warfare. This supremacy has actuated the devastating bombing against German cities and production plants, which has led many people to believe that the war can be finished up against Germany by that means alone.

Third, but not least, the amazing success of the Russian army in repulsing the attacking German army in Russia, and the subsequent Russian victories which have resulted in driving the German armies back for hundreds of miles and almost completely off of Russian soil.

Although all of these operations have together raised Allied hopes to the point where certain victory over Germany is being predicted for 1944, and subsequently over Japan, it is really the successes of the Russian armies that have justified these hopes most reasonably. Without this success, just where could there be found a real reason for any hopes of victory in 1944, or indeed in any subsequent years? Fortunately, it is not necessary to speculate on that question.

Conceding, then, that it is the Russian army that has done the most fighting and won the most successes so far for the Allied cause, without deprecating in the least the great sacrifices made by the armed forces of Great Britain and China, and indeed our own, it is interesting and instructive to inquire into the technical methods by means of which Russia has conducted this fighting and won these successes.

This task has already been accomplished in some measure by The CAVALRY JOURNAL through its published articles written by important officers of the Russian army during the past two years. This material has been available for the benefit of military leaders if they so much as take the trouble to read and reflect upon it. It is true that not the whole but only a part of the tactical technique of the Russian army has been covered in these articles. The CAVALRY JOURNAL has confined itself to that in which it is particularly interested, namely, the technique of armored forces and of cavalry.

In these Notes, published in every issue of The CAVALRY JOURNAL for nearly seven years, an effort has been made to evaluate the work of armored forces and cavalry, both in the Russian army and elsewhere. Believing, with the Russians, that the advent of armored forces did not substitute a new arm for the cavalry but simply provided an added arm for the prosecution of warfare, I have attempted to show that the missions of cavalry have not been taken over by armored forces to that degree that should diminish the value of cavalry for most of its very important rôles as previously established.

Germany, while preparing her army for this war, unfortunately for herself, decided to throw all her eggs in one basket and to rely on winning a quick war against unprepared opponents largely through the means of armored troops. In doing this, she did not make the mistake of neglecting her infantry and artillery, but nevertheless counted on her armored forces as the spearheads of her attacks and the principal means of her new mobility. She, therefore, suppressed her cavalry to a large extent, but not so much as those of her opponents who slavishly imitated her methods. Since her opponents did not have any armored forces to speak of, or any troops specially armed and trained to oppose her armored forces, this scheme worked very well in 1940.

When the Germans attacked Russia, however, this weakness was made manifest. The Russians had not suppressed their cavalry but had enlarged it. Furthermore, the Russians were in the process of enlarging their armored forces and their antitank forces. The Germans were superior in the air, and, for a few months, in their armored forces. At the beginning, therefore, it was only in their cavalry that the Russians were superior. But this sufficed until they could catch up with Germany in regard to the new arms—armored force and airforce. When this was done, Russia was superior as a whole, because of her added strength in cavalry. That they made good use of this advantage is patent to all who choose to read.

Despite our successes on land and sea, and despite our overwhelming and terrible attacks upon Germany from the air, it is now being acknowledged that Germany cannot be beaten to her knees until the German army is defeated and made to surrender. Although Russia continues at this writing to succeed against the German armies, the Russians insist that the British

and American armies must assist her by invasion of Europe.

When the British and American armies invade Europe, they will be opposed by strong German armies. Our armies, therefore, should be equipped with every available means of land warfare. It would be well to learn from the Russians as much as possible about their successful operations against the Germans. Nothing should be neglected. The Russians have made and are still making extensive use of cavalry. Cavalry in western and southern Europe can be made as useful as it has been in Russia—perhaps more so.

Are the United States and Great Britain going to send armies into this theater of operations without a numerous cavalry despite the example set by the Russians?

The answer to this question seems already to have been made. Great Britain and the United States appear to have suppressed their cavalry. Cavalry officers have been transferred to other branches and duties or remain in cavalry regiments that have been mechanized and virtually changed into armored forces. It must be assumed that our military leaders have considered this question carefully and have made this decision, right or wrong, based on certain conditions which prevail in this war. Probably, the most important factor in arriving at this decision was the fact that the fighting is overseas and not on this continent or this hemisphere. Had it been otherwise, it must be assumed that a different decision would have been made, although, as will appear later, there are some officers in our army who have, wrongly we think, lost their faith in cavalry altogether.

Good cavalry is not easy to make. It would take considerable time to produce and train a large force. This country is no longer a country of horsemen. All young men drive motor vehicles and understand gasoline engines and their upkeep. Their training for armored force, therefore, is less difficult than for cavalry. Those difficulties, however, can be overcome, as has been shown in the regular cavalry. Had the necessary steps been taken in 1940 or even 1941 to increase our cavalry, a large and formidable force would now be available. The real reason for not doing this was the difficulty of transportation overseas. In 1940 and 1941, shipping was in a critical condition. Ships were being lost faster than they were being built. Although, at this writing, that situation has changed, at that time the outcome could not be foreseen. The difficulty of getting cavalry overseas was therefore considered insurmountable. Our leaders may have been right.

Nevertheless, there are many officers in our army who were very ready to see those difficulties because of their erroneous disbelief in cavalry. What the effect of our disuse of cavalry in this war will have on the future and whether cavalry will ever again be maintained in our army even for possible military use on this continent, is hard to say.

In nearly all of my Notes I have been protesting against the suppression of cavalry in the British and American armies. My efforts, right or wrong, have fallen on barren ground.

In the history of American and British military campaigns, we can find many examples of the failure of military leaders to provide their armies with numerous and up-to-date cavalry.

During our War for Independence, sometimes improperly called The American Revolution, General Washington was strangely blind to the importance of an American type of cavalry which could easily have been formed from the many horsemen and horses in the Colonies and supplied with abundance of forage to be found almost everywhere. The truth is that Washington as a general, during the campaigns of 1776 and 1777, displayed a strategical and tactical dullness that was exceeded only by that of his opponents, Sir William Howe and Sir Henry Clinton.*

*"Washington and Cavalry," *Studies Military and Diplomatic*, by Charles Frances Adams, published by The Macmillan Company, 1911.

"Washington and Cavalry"

Summarizing the campaign of 1777. . . . Trevelyan says that if Washington had begun the campaign with a respectable force of cavalry, numerous enough to cover his own front and watch the movements of the enemy, his advance guard need never have been surprised at Paoli and even Brandywine might have told another tale." He then adds that Washington, during the Valley Forge winter, gave much of both time and thought to the creation of such a force. The organization of what was subsequently known as "Lee's Legion" resulted. . . . Yet that very corps . . . emphasizes forcibly Washington's limitations as a cavalry leader, and his failure to grasp in a large way the part which a sufficient and effective mounted service, both might and should have played in the general field of the operations which it devolved on him to conduct. . . .

In view of what subsequently took place during the War of Secession in this country . . . it is useless to say that this (cavalry) was impracticable; and the question next presents itself—Who was responsible for this strategic and military shortcoming? . . . The obvious objection will, of course, next be advanced that the keep of horses is costly, and Washington, when not wholly destitute, was always short of funds. This hardly merits attention. The Connecticut cavalry were dismissed and sent home on the specific ground that horses were thought to be of no use in the operations then in hand. The riders were invited to serve on foot. Yet only a month later, because of the lack of even a pretence of a mounted service, Washington's advanced line was flanked, and the very flower of his army needlessly sacrificed. . . . In the next place, Washington did not then, nor afterwards, cry aloud for eyes and ears for his army, and have them denied him on the score of cost. . . . Finally, later on, the item of cost did not, in 1780 to 1782, prove an insuperable obstacle in the way of the development of a most effective mounted service in the Southern Department; though compared with Greene's, Washington's camp chest was a purse of fortunates. . . .

—CHARLES FRANCES ADAMS,
"Studies Military and Diplomatic."

It was not only the failure in regard to cavalry that was so distressing. In the campaign that was enacted in and about what are now the cities of New York and Brooklyn during the months of August, September and October, 1766—and particularly during the days of August 26-29, when the Battle of Long Island was fought—Washington displayed such errors of judgment that he involved his army in almost certain disaster and disgrace, and the American cause, from every reasonable standpoint, should then and there have perished. But luck intervened. Washington and the patriot army were saved by the extraordinary procrastination, hesitation and incompetence of the British army and navy leaders.

Interrupted by wholly inconsistent and contradictory flashes of brilliance, the whole campaign of 1776 and 1777 was fought in the same dull way. The saving grace was that whatever were the mistakes or failures of Washington they were invariably compensated for and exceeded by those of his opponent, Major General William Howe. It would probably be not far from the mark to say that Washington owed his final success, not to his superior generalship, but to his lofty and noble character, his integrity of mind, his high sense of duty and his fearlessness in expressing his views to his countrymen. In point of character, he was very superior to his British opponents.

Washington's conception of the rôle of cavalry was undoubtedly derived from his reading of the campaigns of Frederick The Great. In fact, the whole training and conduct of the Continental Army was so unfortunately influenced by Prussian officers that this alone nearly wrecked the cause of independence. The American army should have fought according to its own genius, its own conceptions, its own terrain and the characteristics of its own people, rather than to have tried to imitate the methods of the Prussians in Europe.

A large cavalry arm should have been formed. But it should have been American in its training and tactical conceptions and not Prussian. Washington rejected the whole idea of cavalry because his only idea of cavalry was that of the Prussian cavalry. Indeed, the Prussian cavalry was not suited to the tasks that would have been imposed upon it in the American War of Independence. So far, Washington was right. He failed, however, to appreciate the great advantages that he would have enjoyed if he had formed a numerous corps of American cavalry to be used as he saw fit and not according to any preconceived or European ideas.

The lack of cavalry in Washington's campaigns exposed his army to frequent surprises and near disasters. Without cavalry, he used infantry detachments for reconnaissance in force, for delaying actions, or for striking suddenly and with surprise at the sensitive spot of his enemy's line in the midst of battle—all cavalry missions. And consequently, he suffered disasters which, as at the Brandywine and at Peoli, nearly cost him the destruction of his army.

The cavalry which Washington needed was an irregular cavalry such as finally came into being under Daniel Morgan in the latter part of the War of Independence in the Carolinas. The irregular mounted troops of the Boers in South Africa in the years 1900-01 would have served the purpose well.

Washington was practically without cavalry, though not totally so. Late in the year 1777, the Polish officer Count Casinoir Pulaski, commonly credited as the first Chief of Cavalry in the Army of the United States, was appointed a brigadier general in command of the cavalry that Congress had authorized to be formed. Pulaski was a dashing and brilliant soldier, but he was not fitted to command American troops. His efforts were frustrated not entirely by his own failures but largely by the indifference of Washington to his proposals to form a large and effective cavalry corps. No such corps was ever formed, and Pulaski resigned his nebulous command in March, 1778. He attempted to raise an independent force to operate in the south, and met some success until he was mortally wounded, Oct. 9, 1779, in front of Savannah, Georgia.

Although Washington's Continental Army had to operate without cavalry, the British army under General Howe did have a small force of dragoons. Fortunately for the patriot army, it was trained according to European principles and accomplished very little in America.

While the Continental Army did without cavalry, it is pertinent to remark that in the operations in the Carolinas from May, 1780, to September, 1782, the patriot irregular cavalry under such men as Light Horse Harry Lee and Daniel Morgan were largely responsible for the failure of the British campaign, even though the brilliant Tarleton used mounted troops for the British cause in that campaign quite as effectively as did his American opponents. But had Tarleton's mounted troops not been compensated for by American irregular cavalry, the southern campaign would certainly have been lost to the Americans.

Another example of the stubbornness of ignorance is the attitude taken by the commander of the American forces in the Philippine Insurrection in the year 1899. When it became obvious that the insurrection could not be averted, or shortly after it began in February, 1899, the War Department offered to send several large cavalry regiments to Manila. Major General Otis, in command, with about ten thousand troops, volunteers and regulars, without any cavalry except a half regiment of the 4th Cavalry, dismounted and acting as infantry, was confronted by a Filipino army of some thirty thousand men under Aguinaldo, ill-equipped and poorly trained. There was no question in the minds of our men that we could defend Manila from any attack by the Filipinos. But, if we wished to attack and destroy Aguinaldo's army while it was all assembled in the vicinity of Manila, and thus prevent it from scattering throughout Luzon and turning the whole campaign into a guerilla war, so very difficult and tedious to over-

come, cavalry was necessary. General Otis rejected the offer of the War Department with the statement that cavalry could not operate in the country of Luzon and would be of no use to him.

This extraordinary statement, so utterly refuted in the later months of that year when it was too late to catch the Filipino army assembled in one locality, must have been induced only by ignorance and prejudice. Three regiments of cavalry boldly led in coöperation with our other troops could have destroyed the Filipino's resistance in a few weeks. Instead of that, the Filipino army, when attacked by our forces, separated into detachments of various strength and maintained a guerilla warfare for nearly three years.

In the War of 1812, we suffered again from the lack of cavalry of an American quality.

In the Mexican War we had neither a sufficient number of cavalry nor skill in the proper use of what we had.

In our Civil War, ignorance on the part of our leaders as to the proper use of cavalry, contrasted with brilliant cavalry exploits in the Confederate army during the first two years of the war, gave the Confederates a decided advantage in that early period.

With certain remarkable exceptions (such as the Confederate cavalry in the first two years of the American Civil War and Federal cavalry during the last two years), the whole history of cavalry since the time of Napoleon has shown lack of progress and skill in the science of its employment. This has by no means been due only to the failure of those of our military leaders who came from other branches of the service. It has been due largely to the failure of our cavalry leaders themselves. It is true that the example set by Washington in his non-appreciation of cavalry set a traditional indifference in our army to the value and even necessity for large numbers of cavalry. But lack of leadership in this regard in the cavalry itself is also responsible. The Civil War developed on both sides some very fine cavalry leaders. After that, however, the cavalry slumped down into an attitude of complacent self-satisfaction and non-progression until a few years before the present war commenced.

This same charge can be made against our infantry which, as late as 1917, was using the battle line, as prescribed in the 1911 Infantry Drill Regulations, of one man per yard, and the absurd advances by rushes without taking advantage of cover, and sometimes deliberately across ground that afforded no cover. Thus, our tactical developments never kept abreast of the improvements in firearms.

It must be acknowledged also that the absurd jealousy, or rivalry, between the infantry and the cavalry has worked to stultify scientific progress in the theory of coöperation between the two arms, and particularly the earnest study of the employment of cavalry.

There is little wonder, therefore, that when armored forces gradually developed, many officers of all branches thought that this new arm could take over the whole rôle of cavalry.

Despite the lessons from Spain, where Franco's forces had finally to use considerable cavalry numbers in order to win, we tumbled headlong into the error, committed by both Germany and Great Britain, but avoided by Russia, of suppressing our cavalry instead of increasing it.

When one tries to explain to the opponents of cavalry the value of this arm in modern warfare, he is confronted with certain stereotyped phrases such as the following: "The machine does not get tired, the horse does"; or, when one speaks of the value of a combination of armored forces with cavalry, the reply is: "The cavalry cannot keep up with armored vehicles." Without any further consideration the whole subject is dismissed.

Of course it should be unnecessary to explain here why these statements are so utterly misleading. One might as well say that since the machine does not get tired and the foot soldier does, there is no use for infantry. The idea that cavalry cannot keep up with armored forces is refuted by the frequent combinations of cavalry and armored forces in Russia. When in contact or near contact with the enemy no tanks or armored vehicles of any kind are going to travel on roads at thirty or forty miles an hour in the direction of the enemy. In wide encircling movements, cavalry can often be assembled beforehand in a convenient adjacent area or moved on interior lines across country. When cavalry and armored forces cannot be kept close together, the cavalry can be given a separate mission and moved on interior lines to connect the large infantry formations with the armored forces, thus acting as a link.

The various ways in which our modern cavalry could help our infantry, support our armored forces, or undertake separate but coöperative missions, have been recited frequently in these Notes or other articles printed in The Cavalry Journal. If England had not decided to suppress cavalry five or six or more years ago she could have had plenty of it now in England ready for any great operations on the continent. Whether the British cavalry, had it been maintained, would have been of the type necessary for success in modern war, by which is meant a more or less irregular cavalry operating in great numbers but dispersed into small units, is open to question.

As it is, it is certain now that, right or wrong, wise or unwise, any large British and American armies that may invade Europe presumably will do so without the benefit of any adequate force of cavalry. We hope they may succeed without it. Washington won his seven year campaign against the British without it. But it is now obvious to any intelligent military student that the lack of cavalry exposed his army to defeat and almost to disaster on many occasions, and that although he eventually won, the lack of a cavalry peculiar to America cost many lives and prolonged the war by several years.

Editorial Comment

On Foot and Horseback

The following editorial from the November 15th issue of *The Stars and Stripes* in London, was received too late for the last issue of The CAVALRY JOURNAL. Although the editorial is now two months old, it still warrants re-publication. In fact, current news dispatches of more recent Russian successes are replete with Cossack cavalry actions against the faltering German lines:

In the days before war, advocates of air power and mechanization held the center of the stage.

Then came the fall of Poland, the Battle of France and the Battle of Britain. Tanks and air power were mentioned in screaming headlines. Irresistible was the word used by those in high places, and irresistible they seemed to be.

Then came North Africa, and the foot soldier came back into the headlines. With a bazooka gun on his shoulder, he proved his need and his worth. Artillery again gave him full support.

Now the Cossacks are back in the news, and exactly a week after the break-through at Kiev, three divisions of Cossacks stormed into the key rail junction of Zhitomir, 80 miles to the west. This is the second great victory won by horse cavalry on the Russian front in the past two weeks. After the breakthrough at Melitopol, when the German army was moving hastily westwards towards Kherson and the Dnieper, the Russians pursued them, not with armored forces which might become isolated from the Russian infantry to the rear, but with cavalry—with large formations of highly trained, heavily armed cavalry. And these Cossacks not only succeeded in harrying and cutting to pieces the rearward units of the retreating German forces, but they were also directly responsible for the fall of the Perekop Isthmus. Arriving at the isthmus two days before the German defenders expected them, they captured 6,000 Germans and the gateway to the Crimea.

Of course this doesn't mean that infantry, artillery and horse cavalry will now take over from the tanks and the planes; but it does mean that the best arm should be used for each job, and intelligent leadership will always see to it that the right arm is in position to be used when the opportunity for its use is at hand. In central Russia today, cavalry is being properly used. Cars and tanks are no substitute, because cars cannot go over the open country and tanks are far too cumbersome. In Italy the Apennine barrier limits the use of tanks; so the Queen of Services is carrying the brunt of battle.

In 1939 some of the experts predicted that the war we are now fighting would start where the last one ended and end where the last one began. History is proving there was some truth in that statement.

* * *

Cossacks Cutting German Escape

London (Saturday), Jan. 15 (AP). Mozyr and Kalinkovichi, 12 miles apart, were captured on the fourth day of an offensive that tore through a heavily defended area.

The Moscow radio reported Cossack cavalry were speeding over the snow-covered ground well west of both towns, cutting off the escape route of Germans fleeing from the bastion cities.

Kalinkovichi is particularly important as a junction on the Moscow-Warsaw railway and the Leningrad-Odessa line. Its capture, with Mozyr, cleared another sector on the north-south route between Zhlobin and Berdichev, which the Russians need for communication between their White Russian and Ukrainian forces.

* * *

On the Air

The CAVALRY JOURNAL is doing its utmost to keep its readers up to date on information of cavalry actions in the present war. It is gratifying to hear radio commentators quoting the JOURNAL over the air. It helps to keep an uninformed public informed.

* * *

The Real Meaning of "Permissible Speeds"

Unit commanders who make sure their drivers have seen the "Caution" plates on automotive equipment and memorized the "permissible speeds" will avoid many maintenance woes. In some instances, they will escape the personal disgrace of motors needlessly but hopelessly wrecked.

Beside the instrument panel (or nearby, on the dash) all cars and trucks carry a table of the maximum permissible road speeds for the various gear positions. Of course, it is important that the operator observe these posted speeds at all times, but it is no less than vitally imperative that he does so *when descending a long hill in second gear*. There are literally scores of instances where the motors of army trucks have been reduced to broken, smoking junk while going down mountains in second, although the road speed of the vehicle at no time exceeded 35 miles an hour.

For example, as long as an army truck with a permissible speed of 11 miles an hour in second gear, holds to 11 miles an hour, its engine turns over at 2750

R.P.M. That is a safe number of revolutions and will do the motor no harm.

But suppose the driver, with his gear in second for a downhill run, wants to keep up with some lighter vehicle ahead of him. He may never have heard about "permissible speeds," and thinks he is above criticism if he stays under a road speed of 35 miles an hour. It happens, unfortunately, that at 35 miles an hour his engine will be turning over at 8200 R.P.M. If he maintains this conservative road speed for no more than a relatively short distance, it will mean scored pistons and cylinder walls, stretched or broken connecting rods, ruined bearings, probably damage to the shaft, and, generally speaking, one veritable mess. Among other things, the moulded materials in the clutch driving disk may explode if 5600 R.P.M. are passed.

To emphasize the damage that can occur in a truck motor turning over at 8200 R.P.M., it can be pointed out that this motor speed, if applied through high gear instead of second, would drive the truck 105 miles an hour.

The convoy leader takes on a big responsibility as he pushes his jeep over the crest and begins the run downhill. If the grade is steep enough to call for a shift of gear, he should never exceed the lowest permissible road speed for any truck behind him.

Cavalry Journal Material

A tabulation of comments on material published in 1943, as taken from recent "proxy cards," produces an interesting comparison with a similar tabulation for the preceding year.

As usual, the majority of proxy cards gave no answer to the query, "What article did you like best?" Also, it must be remembered that a large proportion of members of the Cavalry Association are out of the country, and, as specified in the Constitution and By-laws, proxy cards were mailed only to those members "within the continental limits of the United States."

	1942	1943
Current War and Accounts of Personal Combat Experience	134	87
Cavalry (with a large proportion for 1943 emphasizing Russian tactics)	120	172
Tank and Mechanized Warfare	107	67
Reconnaissance	57	147
"All Good"	41	29
Training methods, small unit tactics, and weapons	24	5
Air-Tank-Horse in Reconnaissance	10	..
Tank-Cavalry Coöperation	..	9
Miscellaneous	44	45
Total	539	561

Every effort has been and is being made to obtain as much material as possible of combat experience—especially of U. S. troops. This should become increasingly available as U. S. forces participate ever more actively in the prosecution of the war.

Current editorial policy is to publish all available material on cavalry action in the present war; reconnaissance; armored warfare (tank, antitank and mechanized); interesting accounts of campaigns or battle experience, particularly those that show the development of new tactics; and instructional articles from the training centers.

A Book On Reconnaissance

The urgent need for trained reconnaissance personnel is one of the vital lessons learned from the Tunisian Campaign. For the past year and a half, The Cavalry Journal has published at least one good reconnaissance article in each issue, but to date there is not a single authoritative book on the subject.

In view of the tremendous demand from officers and units for information on this subject, the best of the material published in recent issues of The Cavalry Journal has been collected and will soon be published in inexpensive book form of convenient size.

Many of these articles are based upon personal combat experience. All of them contain valuable information and training data for reconnaissance units. They include training material for the squadron, troop, company and platoon; reconnaissance methods for the infantry division, the armored units, and the T-D battalions; reconnaissance peculiar to the desert, the jungle, and street fighting; aerial reconnaissance and photographic reconnaissance.

Authors will include such well known officers as Major General C. L. Scott, Brigadier General Hamilton S. Hawkins, Colonel Peter C. Hains, III, Lt. Colonel Charles J. Hoy, Lt. Colonel Harry W. Candler, Lt. Colonel Allen D. Hulse, Lt. Colonel Brainard S. Cook, Lt. Colonel R. G. Fergusson, Lt. Colonel Bruce Palmer, Major James W. Bellah, Major Willard O. Foster, and others.

Announcement will be made as soon as publication date and price are known. Have your copy reserved now.

Your Cavalry Journal Address

Enrollment in the Cavalry Association has increased three times as much during 1943 as it did during 1942. This has more than doubled the circulation of The Cavalry Journal since this country declared war in December, 1941.

If your Journal is not reaching you, if you have borrowed a friend's or are reading this at the Club, or if your copy has been forwarded one or more times before it has reached you—then tear out the change-of-address card in this issue and send in your correct address. The change will be made at once, and the chances are that the next issue will reach you promptly.

The Language of the Leader

by Lieutenant Vernon Pizer

FROM a corporal of infantry to a colonel of the medical corps, from the Alcan Highway to Guadalcanal, the one constant unchanging factor is language. The language of the military leader is the same whether it is expressed in Russian, Polish, or English. Battle commands, basic instruction, military law, administration—all are dependent upon language. An army could not exist, much less function well, without it. War serves to swell the importance of language.

The leader must be, first of all, positive and decisive in his speech. He must not vacillate or sit on a fence. He must banish *maybe, perhaps, I don't think so,* and similar words and phrases. He must be a yes-man and a no-man. Rather than say, "I don't believe you can fix the truck, corporal, but you may try," the leader says, "Go ahead and fix the truck, corporal. I know you can do it." The chances are the truck will be fixed in the latter case. At any rate, the corporal feels that he is regarded as competent and reliable, and will strive diligently to maintain that impression. Instead of saying, "I don't know whether or not we can give you a furlough, Jones; I'll have to think it over," the leader says, "I can't give you a furlough now, Jones, because it will put us over the allowable 15 per cent. I will give you a 10-day furlough commencing February 15th."

In the second place, leaders never "talk down." The leader doesn't flounder around for one syllable words with which to express himself to his men. He credits them with sufficient intelligence to understand language of average difficulty. Men sense "talking down," and they resent it. No one need be told that resentment in an organization plays havoc with morale. On the other hand, leaders don't lend themselves to flights of bombast. They don't take refuge behind a barrage of six-bit words. They don't use big words to impress their superiority and education upon their men.

The leader uses such expressions as "bunk fatigue," "gig," etc., instead of using less expressive, stilted terms. Why tell a man to "depress the accelerator" when you might just as easily tell him to "step on the gas"? Familiar army slang is generally a lot more expressive of the situation than stereotyped phrases, and if your men ordinarily use it, why try to be pedagogical?

The leader does not, however, use vulgar expressions. The idea that a good officer is one who can cuss along with his men is more fancy than fact. Swearing a blue streak will not make your men think you are tough and virile. It will make them lose respect for you, and respect is a big tough vertebra along the backbone of discipline.

The third point to be made is that language, particularly in military correspondence, should be terse, pithy, and unambiguous. All statements can be made in more than one way. There is, though, only *one* best way. Back in 1757, Marshal Maurice De Saxe said in *My Reverie Upon the Art of War,* "His (the general's) orders should be short and simple. . . ."

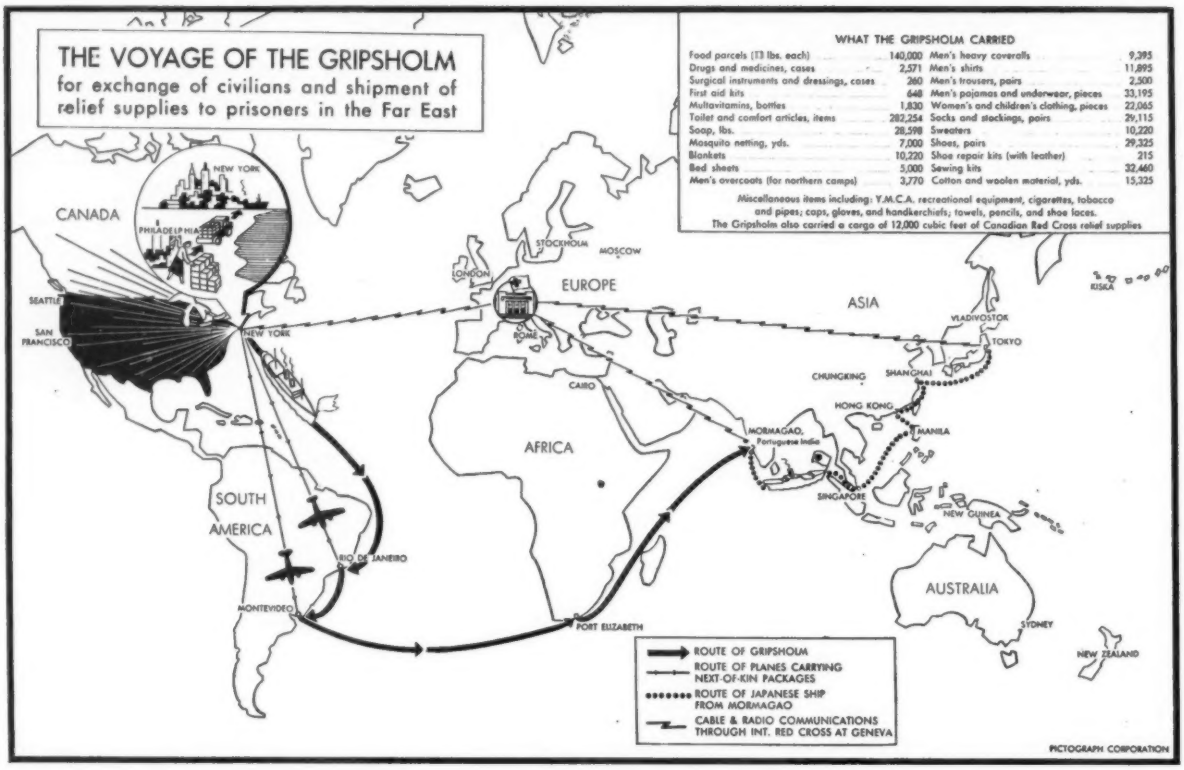
If you were a busy officer in the theater of operations, would you prefer to receive a communication reading, "It is requested that the undersigned soldier be granted permission to proceed in advance of the unit for the purpose of conducting reconnaissance"; or would you prefer to read, "Request permission to reconnoiter in advance of units"? The shorter statement gives all of the information contained in the clumsy, longer statement. In addition, the second wording has the advantages of brevity and clarity. It comes right to the point without beating around the bush.

It must be borne in mind, however, that brevity can be overdone and that it may result in ambiguity. Attempts at achieving the so-called telegraphic style, particularly in orders and field messages, may result in obscuring the intended meaning. Western Union may make an additional charge if you add *a,* or *an,* or *the* to a personal message; but field messages impose no such economic restrictions. What is the meaning of, "C.O. —— Infantry, assembled troops in bivouac area and fortified sector"? Did the C.O. fortify *the* bivouac area, or did he assemble troops in the bivouac area and *the* fortified sector? The addition of *the* to the original message would have made the meaning clear and would not have permitted variations of the interpretation.

The final and most subtle point is that the leader uses words which convey to the listener or the reader the meaning that is intended. He does not use vague terms, or words that have several definitions. Instead of saying that a regimental review is "good," he says it is "precisely-executed" or "colorful." Otherwise, one of his listeners may picture the review as being precisely executed, while the other thinks of it as being colorful, with the result that each goes his way thinking that something different has been said.

Most people will say that an officer, to be efficient, must be a man of vision; yet the most inept recruit, if he is not blind, has vision. Leaders do not speak in generalities; they use specific language. Military instructors who choose their words indiscriminately or use them loosely will have poorly taught and perhaps actually mistaught soldiers. Orders containing terms that permit varied definitions may be misinterpreted, and misinterpreted orders can lose battles—have, in fact, lost battles.

Words are tools that should be used with craftsmanship. They cannot be avoided; they must be used; therefore, use them well.



U. S. Prisoners of War

Gripsholm Cargo Distributed

Washington, D. C., December 23—Word has just been received in the United States that American prisoners in the Philippines began receiving during the first half of December, the food parcels and other relief supplies trans-shipped from the exchange ship, *Gripsholm*.

A cable has been received by the American Red Cross from Geneva stating that the International Red Cross delegate in Japan, Dr. Fritz Paravicini, was making every effort to dispatch in time for Christmas one food parcel for each United Nations military prisoner of war and civilian internee detained in Japan proper, and in Korea, Taiwan and Manchuria.

In Europe, American prisoners of war and civilian internees were sent 10,000 special Christmas packages containing the "makings" of a holiday feast: chicken, cheese, fruit cake, candy, jam, nuts, coffee and cigarettes. Christmas candles and two handkerchiefs were also included. To supplement regular food packages, received weekly through the International Red Cross Committee, 10,000 morale gifts—ocarinas and puzzles—were sent by the Junior Red Cross.

(The letters from which the following extracts were taken have been furnished to the American Red Cross by relatives. All prisoner of war mail is censored by the Detaining Power.)

Zentsuji War Prison Camp (Japan)
January 23, 1943

"This is my first opportunity of writing, other than my radio message in February 1942 and printed card after arrival at (censored). I was active in the organization of the 121st Regiment and in the defense of the Mountain Province. We had several encounters with the Japanese but were forced in May to evacuate Bontoc for the higher mountain region in Ifugao territory. With the earlier fall of Bataan and Corregidor, orders were issued by General Wainwright to cease all hostilities and for the immediate surrender of the forces of the Mountain Province under Colonel Horan and of General Sharp in Mindanao. Our surrender was effected on June 3rd at Talubin near Bontoc, and consequent internment in Luzon Prison Camps. Most of my

thoughts are with you folks and I am anxious for the time when I shall be back with you."

Stalag Luft III (Germany)
July 2, 1943

"This has to be a joint letter because we are allowed to write only three letters a month, but can receive any amount, so hope you will all write. I was shot down over France on May 29. Consider myself lucky to have escaped injury—only had a sore jaw and leg from the parachute jump, but all right now. . . . Thank God for the Red Cross—don't know what we'd do without their food parcels. Never realized I would be on the receiving end of that dollar R. C. subscription, which will be a lot more when I go home again."

Stalag Luft III (Germany)
June 9

"As our evening meal has appeared before me since I decided to write this letter, I'll tell you what we have had tonight. Corned beef, fried potatoes and pudding. This is an average evening meal based on the contents of Red Cross parcels. For lunch we generally have 'Reich Soup' made from dehydrated turnips, beans, or peas. For breakfast we have bread and coffee. So while we have enough for the present, we will some day appreciate ham and eggs, or hamburger and fresh vegetables. I am studying philosophy, as well as German. Now I am reading Lin Yutang's *The Importance of Living*. This is an important subject for indefinitely confined prisoners of war."

Osaka Prison Camp No. 1 (Japan)
March 4, 1943

"We have been permitted to write an 80-word letter, so don't be disappointed. I have received one letter from you and one from Ed which were very much appreciated. I am in good health and am working. I am looking forward when the war will be over so I can see you all again."

Stalag VII A (Germany)

"I was captured in Tunisia on February 17. Since that time I have endured many things seemingly impossible. My treatment here is very good; food is fairly plentiful; the scenery is nice, and the Red Cross is doing a good job in helping us boys."

Zentsuji War Prison Camp (Japan)
February, 1943

"Our forces surrendered in Bataan, you remember, in April 1942, and we remained in the Philippines quite a while before coming here, and feel that here health conditions will be better."

Zentsuji War Prison Camp (Japan)
November 2, 1942

This is the second time that I've had a chance to write, and this letter, the same as the first, must be considered as being for all of you and Libby. There has just arrived here in camp a shipment of Red Cross materials for prisoners of war. . . . My time during the day is spent in studying Spanish and in reviewing French and shorthand. And I've managed to improve my bridge game a little. . . . (*Zentsuji is among the best of the Japanese camps.*—Ed.)

Camp Life Souvenir

The War Prisoners Aid of the YMCA has recently sent to the camps a notebook entitled "War-Time Log" in sufficient number so that one can be distributed to every American prisoner of war and civilian internee in Europe. The "log" has a stout binding and contains several hundred pages of blank notepaper of good quality. A note enclosed tells the prisoners that it is a "special remembrance from the folks at home," and that it is "intended to be kept as a permanent souvenir of the present unpleasantness."

In it the prisoner can keep a regular diary, write stories, make sketches or caricatures, write poetry, or even put on paper for later use letters that could not be mailed now. Many other possible uses are suggested, all with the primary object of the "log" serving as a visible link between the prisoner and the people at home.

Can Openers

Letters from American prisoners of war to their families occasionally ask for can openers to be included in next-of-kin packages. Every fourth package now being made up in the Red Cross Packaging Centers at Philadelphia, New York, Chicago, and St. Louis contains a small can opener so that in due course a regular and ample supply will be reaching the European camps. Can openers were also included in the special Far East food packages shipped on the recent voyage of the *Gripsholm*.

Prisoner of War Fund

Organizations:

3d Cavalry (Mecz)	$197.19
317th Cavalry (inactive)	100.00
Individual Donations	115.00
	$412.19

Help our prisoners of war, by helping this fund to grow. Send your contribution direct to:

The Cavalry Journal

1719 K Street, N.W. WASHINGTON 6, D. C.

South Pacific Campaign

by Colonel C. Stanton Babcock,
formerly attached to United States
Embassy, Tokyo

European

Jap planes fire Allied oil dump during early phase of New Guinea campaign.

Preparations

ON the 11th of January, 1942, Imperial Headquarters in Tokyo announced that, "Because of the hostile attitude of the Netherlands Government in aiding the enemies of Japan since the outbreak of the War of Greater East Asia, the Imperial Government is compelled, against its wishes, to treat the Netherlands East Indies as an enemy, and Imperial units are now engaged in attacking certain bases in Dutch Borneo and the Celebes."

The implication was that until after the outbreak of the war, Japan had had no intention of attacking the Netherlands East Indies, in spite of the fact that Holland declared war at the same time as the British Empire and the United States. The conduct of the campaign itself, however, as well as a number of speeches and announcements by military and naval spokesmen, indicates that not only had Japan been planning the conquest of that region for many years, but that its naval construction program had actually provided for a large number of ships of the type that would be needed to carry out such a plan.

The tremendous extent of the area of the field of operations presented many difficulties. At the same time, that very extensiveness facilitated the operations of an invading power. The Japanese made full use of all factors in their own favor, and so organized their expeditions as to minimize those factors that would benefit their enemies. The long distances involved meant that the Japanese had to maintain extended lines of communication and organize a number of expeditions to strike simultaneously at widely separated points.

Those same distances required the Dutch to defend almost equally long lines of communication and maintain garrisons at a number of different points, none of which was capable of rapid reinforcement once the campaign got under way. The small army, of some 80,000 men, available for the defense of the Netherlands East Indies had to be kept in Java, except for a few troops which were necessary for the protection and operation of outlying submarine and air bases.

In spite of the tremendous size of the South Pacific region, complete control could be obtained by the occupation of some ten key points, none of which was defended by a large garrison. Because the Japanese were on the offensive, they had the initiative and could select the time and place of attack. By concentrating

an overwhelming force they could then reduce any one point long before reinforcements could arrive from Java. The Japanese knew full well that the only thing which could have prevented the success of their campaign would have been a large air force which could attack convoys on the way to their landings, and could bomb captured bases after their occupation, and so prevent the Japanese from using them in preparation for a move to the next point.

Coördination With Other Campaigns

The High Command had divided the conquest of this area into three phases, two of which were very carefully coördinated with the concurrent campaigns in the Philippines and Malaya. The first phase, which included the capture of the American islands of Guam and Wake and the occupation of British North Borneo, had to be completed in the earliest stages of the war. The capture of Guam and Wake would effectually cut the American line of communications between Pearl Harbor and the Philippines and so prevent the troops in the Philippines from being reinforced. It was also necessary for the protection of Japan Proper, and of her communication lines to the Mandated Islands and to the eastern part of the Netherlands East Indies, where her troops would soon be in action. The occupation of British Borneo would remove submarine and air bases which could have been used to attack convoys supplying Japanese troops in the Malay peninsula.

The second phase was the occupation of outlying bases in the Netherlands, of New Guinea, and of the Bismarck Archipelago, which would put the Japanese in position to attack the islands of Java and Sumatra and to assault the mainland of Australia. These operations had to be completed by the time that Singapore fell, so that the troops which had reduced the Malay peninsula could proceed to their next objective, the capture of Sumatra and Java, without unnecessary delay. The first two phases of this campaign, then, were the responsibility of the Navy. The third phase, the taking of the main islands of the Netherlands and of Australia, was to be carried out by the Army with the coöperation of its sister service.

The execution of the first phase required a limited number of men and ships and could be accomplished at the same time that the Navy was busy escorting expeditionary forces to the Malay peninsula and attacking British air bases there to facilitate the landing of army troops. The second phase, however, could not be undertaken until the Army was well established in the Malay peninsula and the planes and aircraft-carriers used in that campaign could be released for other duties. It is for this reason, then, that the Japanese ignored the Dutch declaration of war on December 10, and chose to maintain the fiction that they had no intention of invading the Netherlands. As soon as their troops were well established in Malaya and the fall of Singapore seemed assured, the Navy organized a number of special attack squadrons, and in a few short weeks had reduced all the outlying bases and was ready to attack the combined Allied fleet and to escort the Army in the final phase of the campaign.

The First Phase

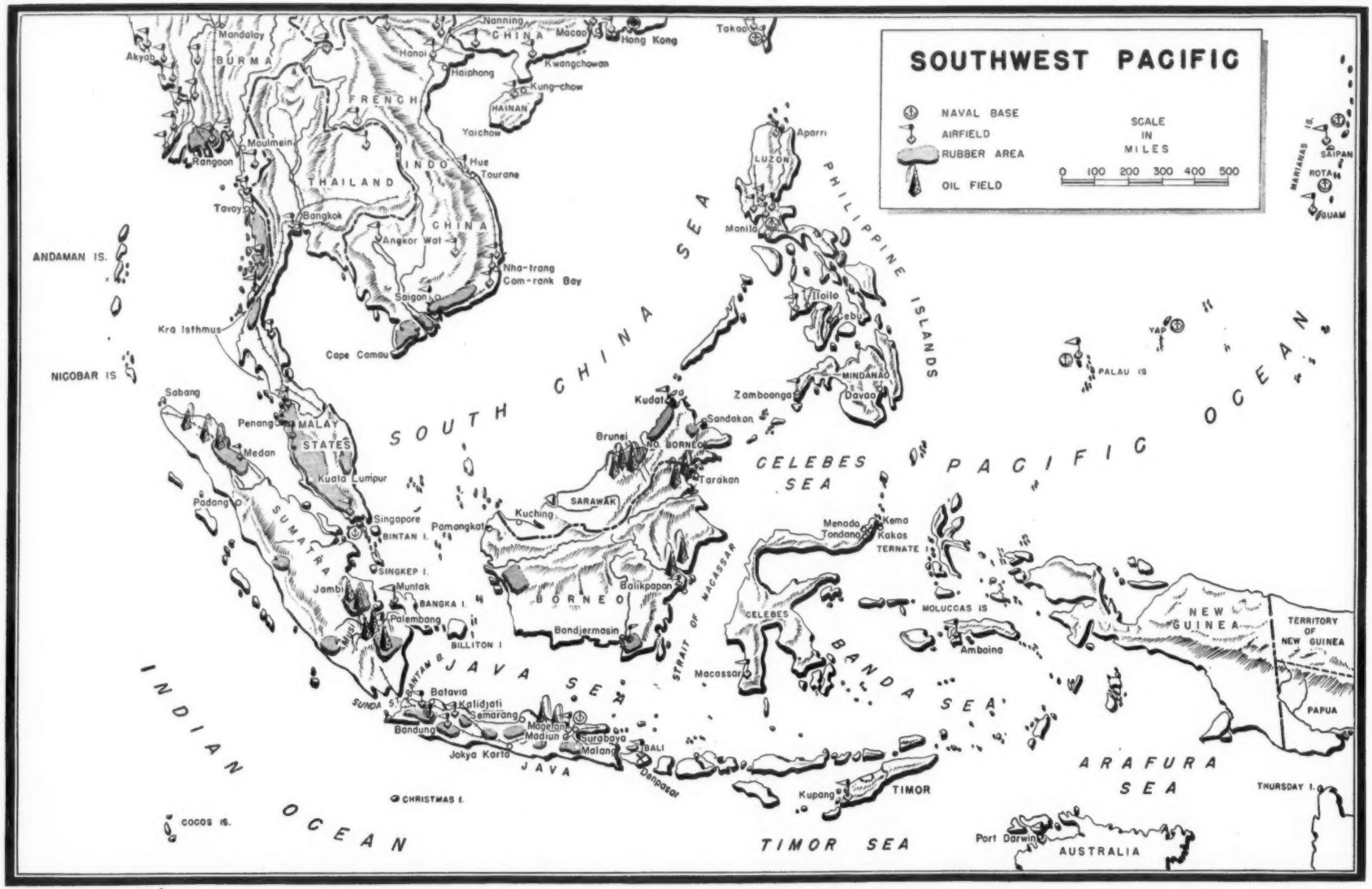
The Japanese brought overwhelming forces to bear against both Guam and Wake, and there is little of interest to record of their occupation of those unfortified outposts. The garrisons of both islands fought gallantly in spite of the hopeless odds, and the troops at Wake defended the place successfully for six hours, sunk a Japanese cruiser and a destroyer, and caused the invaders unexpectedly heavy casualties.

Japanese accounts are loud in their praise of the way in which the Americans handled the two six-inch guns, mounted near the beach, whose installation was far from complete. According to the report of the commander of the Japanese landing party, the fire control apparatus for the shore defense battery had not yet been set up, and during the action the guns were trained by opening the breech and sighting down the bore. The destruction of two enemy war vessels and the damaging of a transport by two guns fired in this slow and awkward manner excited the admiration of the Japanese officers, and all of the personal experience stories referred to this extraordinary feat in terms of glowing praise. It is interesting to note, however, that later accounts published by the Japanese Propaganda Ministry belittled the efforts of the defenders, characterized the defense of the island as negligible, and made every

The Conquest of the South Pacific from the Japanese point of view.

Like the "Philippine Campaign," the "Hong Kong Campaign," and the "Malaya Campaign," written by Colonel Babcock, this account of operations in the Southwest Pacific is based on information drawn entirely from Japanese sources: official bulletins, news reports, speeches, radio commentaries, magazine articles, and personal experience accounts written by officers and men at the front. The only Allied bulletins used were those quoted in the Japanese press.

Colonel Babcock says: "While confined to the compound of the American Embassy in Tokyo from the outbreak of war until June 17, 1942, I was cut off from any outside news. Consequently, the preparation of this paper has not been influenced by information received through any but Japanese sources. It should also be remembered that all dates are one day advanced over those used in the United States."



"In almost exactly three months from the beginning of the war the Far Eastern possessions of the United States, of the British Empire, and of the Netherlands, had fallen to the Japanese."

effort to convince the Japanese public that the Americans had behaved in a cowardly manner.

On the 24th of December two small Japanese expeditions landed at Kuching and Brunei in British Borneo, and in a campaign which lasted a little more than a week overcame the few British police forces and obtained control of the entire province of Sarawak. Besides denying the British the use of bases in this region, the Japanese thus came into possession of a fine air field which was to prove invaluable to them some weeks later when they started their drive against the outlying bases of the Netherlands East Indies.

The Second Phase

That drive began on January 11, the date of the Imperial Headquarters announcement. The first attack was directed against Menado and was followed by a succession of landings at Balik Papan, Macassar, Amboina, Kavieng, and Rabaul. The landings were carried out by groups which were similarly organized and varied only slightly in strength. A description of each engagement would be repetitious and would not contribute to the value of this report. Typical of the actions, and the most interesting from a military point of view, was the short campaign in the Celebes which began with the attack on Menado.

The Dutch garrison at Menado consisted of about 1200 men and comprised troops of all arms and services. All but 150 were native troops. The strength of the force which the Japanese organized to attack this point is one more example of the policy which they have followed throughout the war—namely, to bring an overwhelming force to bear against every point of attack. The expedition consisted of a naval landing party of 8000 men in three small transports, several cruisers and destroyers, and an aircraft-carrier. In addition, a battalion of about 400 navy parachute troops took off from the captured airdrome near Brunei and were dropped on the Dutch positions an hour or two before the landing party came ashore.

The first indication that the Dutch had of an impending attack was a furious bombardment by thirty dive bombers from the aircraft carrier accompanying the convoy. This bombing attack, just after dawn, was directed against the barracks of the Dutch garrison and the air field at Kakas, and was followed in less than an hour by the arrival of more than twenty transport planes carrying the parachute battalion.

That was the first time that parachute troops had ever been used by the Japanese, and apparently the manner in which the maneuver was carried out left a good deal to be desired. Instead of coming in, as the Germans do, three or four hundred feet over the objective on which their troops are to land, so that the men of a squad will all hit the ground within a short distance of their assembly point, these planes came over at an altitude of more than fifteen hundred feet. As a fairly strong wind was blowing, the men became badly scattered and alighted at widely separated points, away from their leaders and far from the equipment bags which had been dropped at the same time. Some of the men were blown out to sea; others landed in a thick jungle and were unable to join their unit in time to take part in the fight. The mission of this parachute unit was to attack the beach defenses from the rear and to secure their possession prior to the arrival of the convoy. But because the personnel were so badly scattered, they were never able to organize into units large enough to execute an attack. The action did succeed, however, in throwing the Dutch into confusion, and caused them to divert to the task of rounding up the parachute troops, a part of their force which should have been employed in resisting the attack on the beach.

The convoy arrived off shore at eight o'clock in the morning, and the now familiar assault teams immediately left the first transport and raced for the beach under the protective fire of the accompanying naval vessels. The Dutch troops fought bravely, but the extent of shoreline which they had to defend was too great for the number of troops available, and they had erected practically no fortifications for the protection of their men. Their machine guns and artillery kept up a brisk fire until the leading wave of Japanese boats was about eight hundred meters from shore. Then a well-timed attack by a second squadron of dive bombers completely took the heart out of the native troops, and they broke and fled into the jungle.

The Japanese knew that what they had most to fear in all these landing operations was an air attack

Mountain artillery of the Royal Netherlands East Indies Army march to the front against Jap invaders on Java. The small Dutch garrison stationed on the islands had little chance against overwhelming enemy superiority.

Wide World Photo

Acme

Field artillery of the Royal Netherlands East Indies Army practice during maneuvers shortly before the Japanese invasion of the island of Java.

launched from other bases in the islands, rather than the ground troops with which they were immediately engaged, and they realized that it was vital to get men and matériel ashore as rapidly as possible before word of their arrival could get to the nearest Dutch air base at Balik Papan.

The commander of the expedition directed the initial landing party to maintain contact with the Dutch as they retreated towards Tondano and the air field at Kakas, and employed the bulk of his force in unloading the transports and getting supplies and equipment safely ashore. The men worked feverishly in their race against time. By the middle of the afternoon, more than half of the impedimenta had been landed, and the Japanese were in high hopes that their unloading operations might be completed and their ships gotten away before the Dutch bombers came. Their antiaircraft batteries had been set up on shore, and fighter patrols from the aircraft-carrier were constantly circling overhead, so they felt quite sure that they would not be surprised by a sudden and unexpected attack.

About four o'clock in the afternoon, eleven big bombers came in over the hills to the west of the town, and, flying with the sun directly at their backs, were over the harbor and dropping their bombs on the transports below before the Japanese knew what had happened. As the gunners looked up at the planes roaring overhead they saw painted on the wings, not the Dutch insignia, but the circle and star of the American air force and, as a young officer in one of the antiaircraft batteries said, they realized for the first time that American reinforcements had arrived in the Far East.

The Japanese admit the loss of two out of the three transports, but make their usual assertion that all personnel were ashore and that there was no loss of life. In this case, their claims are probably justified, for the ships had arrived in the harbor in the early morning and the attack did not come until late in the afternoon. But personal experience accounts by junior officers present at the time refute official statements to the effect that the American planes were driven off at once, and tell of how they circled over the beaches where equipment was piled up and dropped bomb after bomb on the crowded mass of men and matériel. Five of the attacking planes were shot down; and the Japanese claim that the damage they inflicted so demoralized the American squadron that the attack was never renewed.

The Japanese acted promptly after this bombing, and during the night sent the aircraft-carrier down the coast with instructions to raid the air field at Balik Papan in an effort to destroy the bomber strength located there. According to their version, the raid was a great success. They destroyed four more American planes on the ground, and left hangars, shops, and other facilities a mass of blazing ruin. Whether or not they did in fact accomplish as much damage as they assert, they were not molested again by any planes operating from that base.

Early the next morning, the 12th, the ground troops pushed eastward across the narrow part of the island and pursued the retreating Dutch towards Tondano. On the same day, another small expedition landed at Kema on the east coast of the island about nine miles north of Tondano, and the combined operations of these two columns succeeded in eliminating all Dutch resistance by the end of the day and gave the Japanese possession of the air field at Kakas. Their plans for the occupation of this area and for its use in future operations had obviously been well worked out, and were executed with remarkable dispatch.

On the 14th, a squadron of heavy bombers flew over from Brunei air field and landed at Kakas, where ground crews set to work at once to put the field in shape for use against Dutch air bases to the south. The Japanese now felt more secure, for they were able to counter any Dutch air attacks with land-based planes instead of having to depend on the comparatively few planes borne by their aircraft-carrier.

The operations from that time until the end of February consisted of a succession of attacks by naval landing parties against the key points in this region, which gradually extended Japanese control south towards Java and southeast towards Australia.

The Japanese received only one setback during this period, when the Allied fleet, coöperating with American bombers, encountered a convoy headed south through the Straits of Macassar and caused so much damage that it was forced to return to its port of departure. In this action the Japanese admit the loss of four fully loaded transports, but refute claims made by Allied headquarters of more serious damage and the loss of warships. From the accounts available, it is evident that the losses suffered were severe; but the setback proved to be only temporary and failed to halt the steady march southward.

By January 25, the Japanese had taken Balik Papan, with its air field, and were making preparations to move south towards Macassar and Banjermassin, the last of the outlying bases which protected Java. In the extreme east, landings at Rabaul in the Bismarck Archipelago and at Kavieng on New Ireland put them in position to extend their operations towards New Guinea and the mainland of Australia.

Shortly after the occupation of Rabaul and Kavieng, the Japanese landed a strong force at Salamaua on the northern shore of New Guinea in the hope of marching overland and capturing the important city of Port Moresby. This operation is the only one in the entire campaign which failed. In June, 1942, the troops were still one hundred miles from their objective, and from all accounts were on the defensive and having considerable difficulty in maintaining their position. The Japanese consistently bombed the harbor of Port Moresby in an attempt to prevent the landing of American and Australian reinforcements there, but those efforts failed to meet with success.

Burning oil tanks and oil cars greeted the Japanese when they occupied the former Dutch-held Tandjong in Java. Note Japanese soldier in foreground. This Japanese photo reached the U. S. via Brazil.

Acme

The Third Phase

By February 2, Macassar had been taken, and a Japanese column which had landed at Pamangkat on the west coast of Borneo had pushed overland and occupied Banjermassin, which is within easy bombing range of Java. When, shortly afterwards, Amboina in the Moluccas fell, the Japanese were able to concentrate their entire naval air strength against the air bases of Java to prepare the way for the great naval and land battles which were to culminate in the reduction of that island.

Every day for two weeks, squadrons of navy bombers coming from the air fields of southern Borneo, and escorted by fighter planes operating from carriers in the Java Sea, flew over the air fields at Surabaya, Malang, Madiun, and Magetan, fought off the attacks of Dutch and American fighters, and destroyed planes and establishments on the ground. The first few attacks met the severest kind of opposition, and Japanese losses, particularly in bombers, were extremely heavy. But as the bombings went on, and a limited Allied air force had to go up day after day to fight fresh squadrons of Japanese planes, the resistance grew gradually weaker. By the middle of February, the Japanese were able to announce that the defenders' air strength had been crushed and that their own air force was now free to attack harbors and military establishments throughout the island.

Even before the fall of Singapore, the Japanese Army had joined in the campaign. On February 14, a regiment of parachute troops was dropped on the air field at Palembang in southern Sumatra. This field had been previously bombed twice, and the Dutch air force based there had been either destroyed or driven away. The mission of the parachute regiment was to seize the air field, and to take possession of the oil wells and refineries in the vicinity before the Dutch could destroy them. The first part of its mission was accomplished after a fight which lasted all day. The native troops which comprised the local garrison were badly confused by the necessity of fighting in small groups and against an enemy who came at them from all directions.

From all accounts, the Japanese appear to have been equally bewildered, and it was a long time before they could organize their scattered units sufficiently to drive the defenders away from the air field. By the time they had done this and moved on toward the city to take possession of the oil wells and refineries, the Dutch had done their work, and fires raged everywhere throughout the area.

The next day, a battalion or so of air-borne troops was flown in from Malaya to reinforce the parachute regiment, and for the next nine days these troops maintained themselves without any support except what came to them by air.

At the end of two years of war, the United Nations have begun to push the Japanese invaders back toward Tokyo—still roughly 3,000 miles away. Above map shows the distances to be covered on the "return trip."

As soon as Singapore fell, on February 16, the Japanese organized an expedition to proceed to their relief and to complete the conquest of southern Sumatra. So well were they organized and so rapidly did they work, that eight days after the fall of the British fortress, the expedition, composed of troops which had taken part in the Malayan campaign, set sail, and on the 24th a part of it landed on Banka and Billiton islands, and took possession of the rich tin mines there. The rest proceeded to Sumatra, moved up the Musi river, and landed at the city of Palembang, which was occupied without opposition.

With the arrival of these large Japanese reinforcements, the Dutch abandoned all hope of further resistance, retreated to the southern tip of Sumatra, and fled across the Sunda Straits to join their main army in Java. By the end of the month, the entire southern half of the island of Sumatra was under the control of the Japanese Army.

In the meantime, another Japanese expedition appeared off Bali, and on February 19 landed at Den Pasar on the southern tip of the island. The troops met with virtually no resistance, but that night, while they were still debarking, the few Allied bombers remaining in Java, together with three or four submarines, attacked the convoy as it lay in the bay. The loss of ships, men, and matériel was so serious that the Japanese were not able to proceed with the occupation of Bali but were forced to take up a defensive position around the beachhead in order to save what was left of their troops. The force was not relieved until some three weeks later when the collapse of resistance of the main army in Java caused the Dutch troops in its front to surrender. This attack on their convoy by an air force, which the Japanese confidently believed had been destroyed, alarmed them to such an extent that they renewed the bombardment of the Java air fields. For four days they subjected the air fields to a series of devastating attacks which left them such a shambles that no Allied plane ever rose from them again.

The time had now come for the Navy to clear the waters around Java of the Allied squadron and so permit the army expeditions poised at Singapore to land on the island. In a series of engagements lasting from February 27 to March 1, which the Japanese refer to as the Battle of the Java Sea, the Allied squadron was completely destroyed. A large battle fleet, supported by swarms of bombers and torpedo planes, ranged through the waters of the Java Sea and hunted down the Allied cruisers and destroyers, which had been split up into small groups to protect the vulnerable points along the coast. The last fight, on the night of February 28, was at Bantam Bay, where the American cruiser *Houston* and two destroyers were sunk by the navy escort which was protecting the large Japanese convoy then steaming into the Sunda Straits.

With complete control of the air and of the sea, the Japanese had little difficulty in effecting three landings on the island, and in the entire operation lost only four transports, one of which ran onto a reef in the darkness. The main force landed at Bantam Bay on the night of February 28-March 1, and in spite of the fact that the main strength of the Dutch army had been concentrated in that part of the island, the Japanese advanced 6 miles inland on the way to Batavia and established a strong beachhead before dark.

Other expeditions landed at Samarang, in the center of the north coast, and at a point on the eastern tip of the north coast about 16 miles east of Surabaya. This last detachment had a very difficult time getting ashore and never succeeded in advancing inland at all. It was barely able to maintain its position on the beach until the surrender came a week later.

The units which landed at Samarang overcame the very slight resistance which they met after landing, cut straight south until they came to the town of Madiun, where they too were held until the final surrender. The rapid advance of this force, however, to the point it did reach succeeded in splitting the Dutch army and cutting communications between the forces in the west around Batavia and those defending Surabaya.

There was little fighting after the initial landing on the west coast. On March 2, Batavia surrendered without a struggle, and the Government moved to Bandung in the mountains, while the Dutch army fought delaying actions against the advancing Japanese who were pressing up the road toward this mountain resort. By the 7th of March the Dutch had been forced back into a pocket in the hills surrounding the temporary capital, and Japanese artillery was shelling the town.

On the evening of the 8th, the Japanese announced that they were ready to launch a general attack against the remnants of the Dutch army, and demanded the unconditional surrender of all the forces in the Netherlands East Indies. The demand was accepted, and the next morning all the troops surrounding Bandung laid down their arms and the Dutch commander issued instructions by radio to his forces around Surabaya to capitulate also.

In almost exactly three months from the beginning of the war the Far Eastern possessions of the United States, of the British Empire, and of the Netherlands, had fallen to the Japanese.

Recent photograph received from Dutch East Indies via neutral Sweden claims to show natives who are being trained by Japanese officers to form part of an army which is supposed to fight the Allies once they have begun the reconquest of the Dutch East Indies.

European

European Picture Service

From Oro Bay, New Guinea to Tokyo is more than 3,000 miles.

The Road Bac

by Edward T. Folliard*

The Japanese arrived off Rabaul on January 22, 1942, six weeks after Pearl Harbor. They came in warships and troop transports, and the handful of Australian troops in Rabaul wisely took to the hills. The Japs moved in next day without firing a shot.

The Japs then poured southward, down the coast of New Guinea and through the Solomons.

It was all fairly easy, a part of the whirlwind drive that made Japan look so good in the first six months of the war.

General MacArthur got out of Bataan and flew to Australia on St. Patrick's Day, March 17, 1942. The situation was very critical, and there was much talk of an invasion of Australia. MacArthur, however, was offensive-minded and he began flying troops and equip-

*From *Washington Post*, Sunday, December 19, 1943.

European

Above: **Allied supplies are brought ashore at a disembarkation point six miles from Finschhafen, New Guinea.**

Below: **U. S. Marines pause on the beach of Guadalcanal Island in the Solomons before advancing inland against the Japanese, August, 1942.** Press Assn.

Left: **Native carriers set out along the track in the Wau-Mubo area in New Guinea.**

European

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Right: **Jap pill-box on the New Georgia Island is being sprayed with flame from a U. S. Army infantryman's flame-thrower.**

Acme

ck in the South Pacific

ment to Port Moresby in nearby New Guinea.

The Japs meantime were storming down the coast of New Guinea, bent on taking Port Moresby.

The first real setback, the first bloody nose for the Japs, came early in May, 1942. They had concentrated a large force of warships, transports and cargo ships at Tulagi Harbor in the lower Solomons. On May 4, dive bombers and torpedo planes from American carriers swooped down on Tulagi and sank seven Jap warships and any number of the merchant vessels. That was the Battle of the Coral Sea.

The much more important Battle of Midway came in the following month.

This was a great victory for the United States, the turning point in the War of the Pacific, since it robbed Japan of the bulk of her aircraft carriers. Still, from the American standpoint, this was a defensive battle, waged to keep the enemy away from Hawaii.

The first large-scale American offensive was the invasion of Guadalcanal early in August, 1942. The remark of a Navy officer, made while he was giving out a communiqué on Guadalcanal here in Washington, comes back now, a year and four months later.

"The Japs have had the ball long enough," he said. "Now it's our ball, and we are going to see how far we can carry it."

The Army and the Navy, between them, and with the help of Australian and New Zealand allies, have indeed carried the ball a long way.

The turn of the tide in the Southwest Pacific, however, came slowly. While the battle was still raging on Guadalcanal, the Japs were moving down the New Guinea coast and drawing closer to Port Moresby. In mid-September they were only 32 miles away.

In the meantime, MacArthur was massing more men and supplies at Moresby, and on September 29 he started his counteroffensive in New Guinea.

The northward surge of the Allies has been irresistible ever since. In New Guinea, they moved up through Buna, Salamaua, Lae and Finschhafen, and then made the spectacular jump to New Britain.

Below: **A pair of Marines, camouflaged to blend with foliage, search for a Jap sniper on Bougainville.**

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Below: **The first wave of soldiers storms ashore on Rendova Island. U. S. Forces took Rendova, June 30, 1943.**

U. S. Naval Photo

Right: **Hundreds of paratroopers jumped down to Markham Valley, west of Lae, New Guinea, to block the escape of 20,000 Jap troops. A smokescreen conceals their action. September 15, 1943.**

U. S. Army Air Forces Photo from Acme

Striking on October 6, 1943, a U. S. carrier task force thundered death and ruin on Jap-held Wake Island, once so gallantly defended by a handful of Marines.

U. S. Navy Photo from Acme

The climb up the ladder of the Solomons kept pace with the drive in New Guinea, until the northernmost of the islands, Bougainville, was invaded. Now Bougainville is a claw in the Allied pincers reaching out for Rabaul.

Farther north, the forces under Admiral Chester Nimitz now hold Tarawa and the other Gilbert Islands, and are preparing to storm the Marshalls to the northwest.

All of this, the occupation of New Britain, of the Solomons and the Gilberts, is part of one grand offensive, an offensive which has for its goal the staving in of an outer Japanese barricade and a break-through to victory.

Secretary of War Stimson, in a recent war review, called attention to two successful raids carried out by long-range Army bombers in the Pacific. The targets were Balikpapan in Borneo and Makassa in Celebes.

Balikpapan and Makassa—they haven't figured in the news for a long time now. But once they were sharing the headlines with Singapore, Sumatra, Java and Timor. It was at the time when the Japanese were moving through the Pacific like a typhoon, sweeping all before them, and causing some people to wonder if they would ever be stopped.

The raids on Balikpapan and Makassa . . . are eloquent proof that we are on our way back.

General Douglas MacArthur has now landed his first big pay-off blow—an invasion of New Britain Island, on the tip of which perches the great Japanese base of Rabaul.

All that has gone before in the Southwest Pacific—the invasion of Guadalcanal and the climb up the ladder of the Solomons, the drive from Port Moresby to the tip of New Guinea, the great sea and air battles—has been prologue.

Now the American forces are hot after the No. 1 prize in the Southwest Pacific—Rabaul itself.

If Rabaul falls, we will have knocked a great 1,000-mile chunk out of Japan's outer defense system.

That in turn would expose Japan's inner defenses—Truk, her so-called "Pearl Harbor"; Palau, and other strongholds in the Central Pacific.

And beyond those lie the Philippines, the coast of China, and the final drive on Japan proper.

These troops on Attu were not connected with the main landing on Massacre Bay, but constituted a flanking movement from a tiny unnamed beach where the drive started that culminated in the seizure of the East and West arms of Holtz Bay. All Jap forces have now been driven from the Aleutians.

Acme

Battle for the Gilberts

Press Assn.

Troops advance on Butaritari Beach, Makin Atoll, which already was blazing from the Naval bombardment of November 20th.

AS real estate, the Gilbert Islands aren't much to look at. Actually, they might better be described as a group of atolls. Tarawa, for example, consists of nine principal islands and a number of smaller ones. Makin is two large islands and some islets. Abemama is a patch a dozen miles long and five wide. Betio, the member of the Tarawa atoll where the heaviest fighting occurred, is a scant square mile in area and nowhere more than 10 feet above sea level.

In strategic value, however, these bits of coral, sand and palm rank high. For the Japs, they constituted an extreme eastern flank shielding the major nerve centers of their western Pacific naval sphere, and a threat to American communication lines. In American hands, they represent an important new dent in the Japanese defensive perimeter and a springboard for operations in a number of directions which the continuing Pacific offensive must take.

The Gilberts were taken at a heavy price. Probably not since the stonewall at Fredericksburg or Pickett's charge at Gettysburg have American fighting men taken such concentrated punishment. Old hands who had seen the fighting on Guadalcanal said that nothing there had been as bloody as the battle for Betio. Some, with a professional knowledge of such things, held that there never before had been such a call for courage and a willingness to sacrifice.

The casualty list tells the story. At Tarawa, 1,026 died and 2,557 were wounded. On Makin, where the 27th Division made its landing, the contest was bitter in spots, but less gruelling. Sixty-five died there and 121 were wounded. Abemama, where the Marines went ashore after the main fighting had begun on the two atolls farther north, cost but one dead and two wounded.

Artillery preparation began at 0500, November 20th, west longitude date. The sky was abruptly alight with the muzzle blast from the guns of battleships, cruisers and destroyers. The landing force had the support of the mightiest fleet ever gathered in the Pacific.

Softening by aerial bombardment had begun a week earlier, when the 7th USAAF's Liberators began a series of raids. Their last one took place the morning of the attack, with the naval shells bursting under them and carrier-borne aircraft hurtling down past the formations of heavies to bomb and strafe. Altogether Betio got about 1,000 tons of bombs.

It was a staggering concentration of explosives, but it did little toward knocking out the Jap defenses. They were good. Close-in cannon fire, bangalore torpedoes, grenades and flame throwers were needed to finish them off, and they exacted a prodigious toll among the attackers.

What happened between the beginning of the bombardment and the final Americanization of Betio 76 hours later, as told here, is derived from a variety of dispatches written by several correspondents who went

Press Assn.

Marines found very little protection on Tarawa, but these managed to take advantage of what little cover there was behind a bank on the edge of a lagoon. Note the wrecked amphibious tractors lining the shore in the background.

in with the waves of Marines, and others who stayed at Pearl Harbor to do the over-all picture.

Getting Ashore at Betio

The Marines were scheduled to hit the beach at 8:30 a.m. At first, going in toward Betio, it was easy and quiet. There was even talk that it was going to be another Kiska, with the Japs gone and only demolitions to show where they had been. The remarks about another Kiska stopped when the boats were about 1,500 yards off shore. Land batteries opened heavily against the Higgins boats, already heading in, and against the transports down whose nets the later waves were clambering to their landing craft.

Rough seas and geysers thrown up by shells drenched the Marines, and then the boats began to strand. The coral shelf around the island was not giving them the anticipated draft. The lucky ones got to within 150 yards of the beach. Many became fast 500 and even 600 yards off shore. Smaller craft with shallower draft began ferrying in all they could. Plenty waded—neck deep, chest deep, knee deep. There were not enough of the shallow-draft boats, and those available could not afford to take chances. The best they could do was to bring men in for a shorter wade.

One of the small boat skippers explained that to the Marines piling out of a stranded Higgins boat into his craft.

"It's hell in there," he told them. "They've already knocked out a lot of boats, and there are a lot of wounded men lying on the beach from the first wave. They need men bad. I can't take you all the way in, because we've got to get back out here safely and get some more men in there quick. But I'll let you out where you can wade in."

It was neck deep where that particular group began its wading.

William Hipple, of the Associated Press, told about the wading part in his story:

"About 400 yards from the beach our boat apparently was out of control. The colonel ordered us out and to head in.

"Just before we climbed over the side the colonel shouted at me and grinned:

"'I guess you got a story. It looks like the Japs want a scrap.' A few minutes later the colonel was killed. Meanwhile, I hit the water waist deep; cut off my Mae West life jacket with a knife. I couldn't buckle it. I followed the colonel and the men splashing ahead. We were caught in a crossfire from the right and left—machine guns, rifles and occasionally heavy caliber automatic weapons. The bullets hissed in the water alongside all of us. As the water was now shallower, most of us got down on our hands and knees.

This was a typical battle scene on Tarawa, where unseen snipers hung in trees, and enemy pillboxes were impregnable to all but direct attack.

"We made spurts upright. My head was knocked back slightly. I felt the top of my steel helmet, and it was red-hot where a bullet had creased it. I dived completely under water, as I did many times afterward, and tried to swim submerged as far as possible. The colonel in the lead went down suddenly and never came up again. One of our radio operators also was killed. An officer groaned and went under the water. By the time I approached, he was up on his feet and staggering ahead, although hit in the shoulder."

That was the trip ashore. Within a little more than an hour, six waves had accomplished it—and later, when the tide went out, scores of bodies were visible on the exposed coral. Officer casualties ran high.

Marines at Tarawa

The original beachheads, much troubled by enemy mortar fire, snipers, and Japs, who infiltrated to fire from the shelter of damaged tanks and landing craft in the Marines' rear, were only 125 to 150 feet deep. There were three of them. At one, for a time, the attackers were penned between the water's edge and a log retaining wall only 20 feet inland.

Assault battalions were cut to ribbons. Marines who tried to push inland beyond the wall mainly became casualties—but Marines kept trying. The Jap pillboxes and blockhouses were doing very well for themselves, with much of the deadly sniping coming from their rifle slits. If the shelling had not done overwhelming damage to these fortifications, it had at least stripped the foliage from the palms and eliminated much of that sniper cover.

Nightfall found the Marines indifferently situated, and not too hopeful of being alive in the morning. Their orders were to shoot at anything that moved, and for every man permitted to snatch a little sleep, two had to remain on the alert. For one beachhead, first daylight brought a flank attack by Japs who had worked their way into the shelter of an old wharf 150 yards down shore. An infantry and tank rush drove them off.

An officer, wounded in the fight for the wharf, stayed in action for 60 consecutive hours notwithstanding. That tended to be the way with the wounded. Men with gaping abdominal wounds begged surgeons to fix them up somehow so they could stay in the fight. A captain shot through both arms and legs sent a message to his commanding officer for "letting him down."

The second day, matters began to mend a little for the attackers. Reserves coming in from the boats during the morning took a beating just as severe as those who had been in the original assault; but like the first waves, the reserves kept coming. The situation they relieved is reflected in a report from Colonel David Shoup, who had set up regimental headquarters 30 yards inland against a Jap blockhouse of log and steel. Messaged the colonel, "We're in a mighty tough spot. We've got to have more men."

By 1300 o'clock there was definitely a turn for the better. Light and medium tanks had gotten ashore, and so had half-tracks mounting 75mm guns. The pattern of naval bombardment was improving, and the incessant aerial strafing and bombing was beginning to tell. Millions of rounds of small arms ammunition had been fired.

The blockhouses began to fall to tanks and half-tracks that fought with the muzzles of their cannon shoved within a few feet of the firing apertures, and to Marines who crept up to thrust bangalore torpedoes in upon the Japs.

The Jap blockhouses consisted of a concrete emplacement five feet thick. Superimposed on the concrete were eighteen-inch diameter palm logs. Outside the palm logs were angle irons of railroad rails, and over all was from 10 to 12 feet of sand and coral.

Describing its toughness, General Smith said later, "Nothing but a direct hit from a 2,000-pound bomb would cave in or destroy that blockhouse. A number of them stood up like a house in the sky, silhouetted, and practically every one had been hit by a projectile.

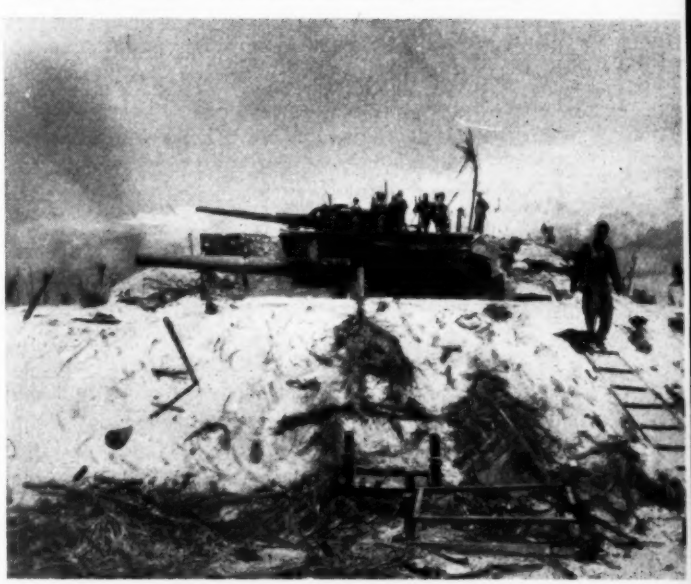
Despite the failure of the bombardment to destroy these strongpoints, however, General Smith contended that it did render the Japs unable to counterattack effectively at any time after the battle began.

By nightfall of the second day, the crucial period was past. The speed of the Marines' advance was increasing. The third day, the Japs began to fall apart. The final push was across the airstrip, Betio's most valuable installation and one which the Americans restored to operating condition within a few days after consolidating their victory. Reinforcements, landed at the west end of the island, finally pushed to the assistance of the men held up at the eastern extremity by concrete and log positions.

Some of the Japs ended their lives with their own rifles when the Marines' victory became inevitable. Most of them fought to the death, and estimates of the number killed have ranged from 3,000 to 6,000. However many were wiped out, the attackers were up against the Japs' first team. Betio was held by the Imperial Marines—the élite branch of the Tokyo military team.

A great percentage of the Marines who took Tarawa were battle-tried veterans. They comprised the 2d Marine Division, and many among them were graduates of the Guadalcanal Campaign. They took with them into battle the calm assurance of men who know what they are about, and how to do the job.

The Japanese used these British-built Vickers 5.5 and 8-inch naval guns, brought to Tarawa Island from Singapore, against the U. S. Marines landing on Tarawa.



Jan. 7 (AP).—Robert P. Patterson, Undersecretary of War, announced here today that a total of only 377 Japanese prisoners have been taken by United States forces to date.

Secretary of the Navy Knox quoted an estimate made by Admiral Halsey that 10 Japanese have been killed for every American lost in the Pacific area. . . .

In the Cape Gloucester area, 2100 dead Japanese have been counted, while only 117 Americans have been killed. . . .

On Guadalcanal, where the Japanese dead total 17,330, American dead in land operations, including airmen, totaled only 1950. In addition, in the Guadalcanal operations, it was estimated that between 25,000 and 28,000 Japanese troops were lost on transports sunk in the Guadalcanal area.

Infantry at Makin

Northward, at Makin, the 27th Division was making its fighting début. It was no Tarawa, but it was no push-over, either.

Sergeant Walter Schliessman, an NCO in the 165th Infantry, told a correspondent about the landing there. Said Schliessman:

"Japanese machine guns opened up when we were 500 yards off shore. Slugs hit the hull, so we debarked into hip-deep water. Quite a few men were hit while wading to the beach. We were in the first wave of the assault platoon. Jap fire stopped when we were about 65 yards off shore. They must have retreated to new positions.

"My squad pushed 20 yards into the brush and reorganized, then cut directly across the island, splitting the Jap positions. The opposition here was very light, just rifle fire. I got seven Japs I know of—five by rifle fire and two by grenades. That was after we crossed the island and began moving west.

"We came upon a Jap machine gun nest. I threw in three grenades, heard some jabbering and knew someone was down there. After the third grenade, four Japs came out. I got two with my rifle, and other fellows got the other two."

As usual, the Jap proved to have his fantastic moments as a fighting man. Sergeant Schliessman told of encountering one inexplicable enemy who was hard to kill.

"Down the trail," said the sergeant, "a Jap, well dressed and wearing a wool hat, came running toward me screaming. He had a new rifle but made no attempt to fire. I hit him with my first rifle bullet at fifteen feet and dropped him ten feet away with two more bullets. He was carrying his rifle at the port arms position and had plenty of ammunition. It puzzled me why he didn't fire. Maybe it was because he was hysterical."

Lieutenant Colonel James Roosevelt, USMC, was another to tell of curious Jap behavior on Makin. Colonel Roosevelt had gone in with the 27th Division soldiers to give them the benefit of his Makin Island experience, gained when he landed there more than a year ago as a member of Carlson's raiders. His account concerned a counterattack by about 100 Japs.

"It was led by four officers in full dress with feathers in their caps and each armed only with a sword," Colonel Roosevelt related. "They closed in on our front line for hand-to-hand combat. One young American got a bad slash across one wrist, nearly severing his hand. "The kid got the sword away from the Jap officer, though, and ran him through several times in spite of his own wound."

Teamwork

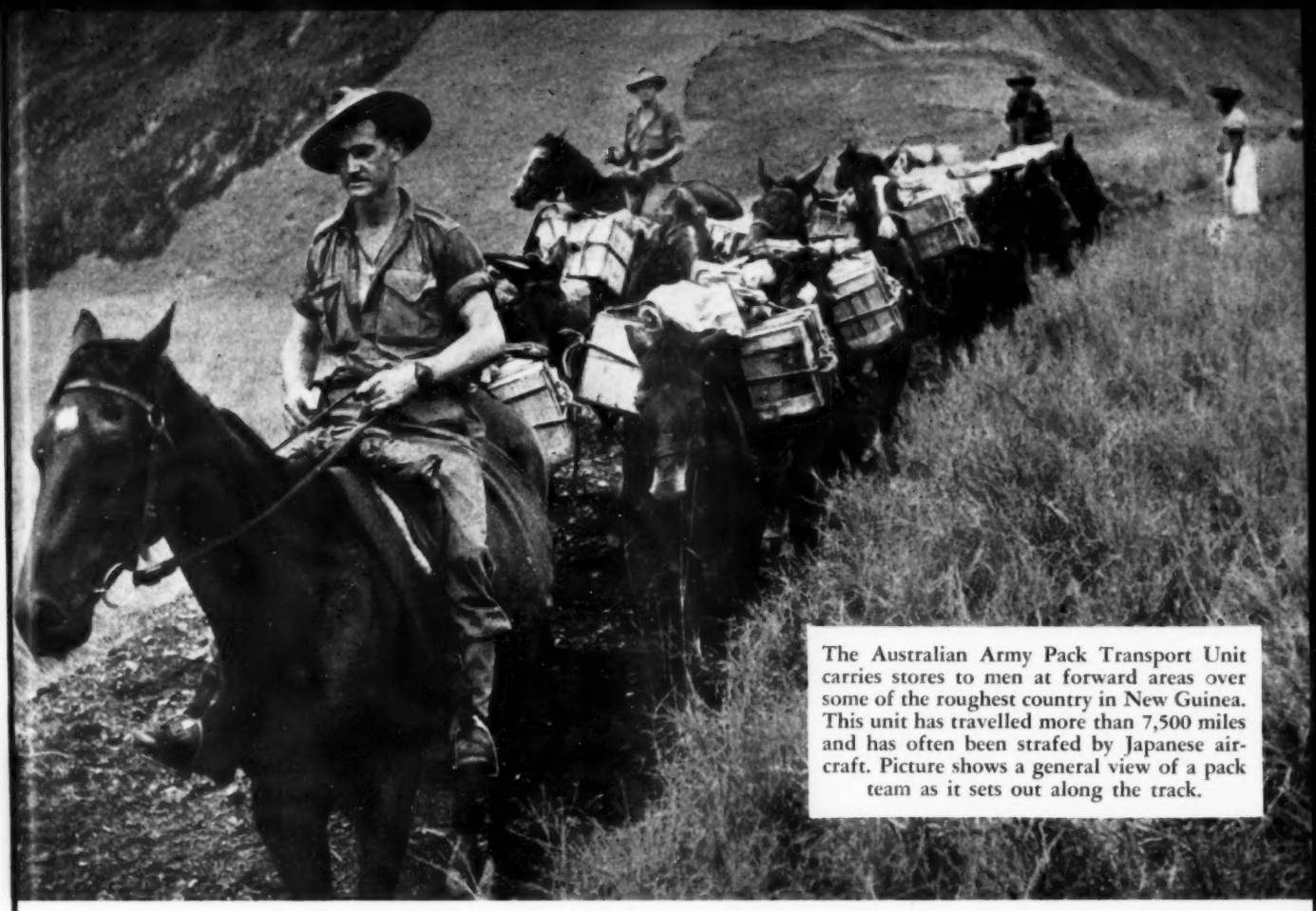
Narrow margins of safety were the rule when carrier-borne planes gave close support to the ground forces. On one occasion at Betio the Marines had to back up to make way for bombers working on Jap fortifications, and even so they left only a 200-yard leeway for error.

The Navy fliers were in action during most of the daylight hours of the three days the battle lasted, and the only naval vessel lost was the escort carrier *Liscome Bay*

An analysis of the battle and what won it was made subsequently at Pearl Harbor by General Smith:

"There is one thing I would like to stress. The capture of these islands was the result of teamwork; that is, naval gunfire, air forces and ground forces. It is my honest belief that never in the history of our country has there been closer coöperation and coördination and mutual support than in this undertaking."

Japanese soldiers died in and on their pillbox on Tarawa Island. Note the dead Japs at the left and on the pillbox. Many other Japs were buried alive in the fortification.



The Australian Army Pack Transport Unit carries stores to men at forward areas over some of the roughest country in New Guinea. This unit has travelled more than 7,500 miles and has often been strafed by Japanese aircraft. Picture shows a general view of a pack team as it sets out along the track.

Australian Pack Transport in New Guinea*

JEEPS are known to Australians as "busy little motor-cars that go places"—nearly all places, but not quite all.

In New Guinea even the Jeep at times cannot penetrate the baffling jungle country. That is where Army Pack Transport Unit, using several hundred horses and mules, comes into the picture.

The nucleus of the units was formed of horses on the island. Already acclimatized and accustomed to grazing on local pasture, these horses have given particularly good service on difficult tracks. On one very bad road it was common to see mechanized vehicles completely bogged, while fully laden horses trudged steadily by, sometimes through mud up to their bellies.

Often the firm bottoms of creeks are used. Sometimes five miles at a stretch have been covered in water up to three feet deep.

Feeding in areas where grass is unobtainable presents a big problem. Animals negotiating difficult trails for long distances have to carry fodder as a big proportion of their pack load.

In crossing high-banked streams it is frequently necessary to unpack the animals, manhandle the loads and saddles across, or rig flying foxes, then lead the animals over, wash them down, saddle up and re-pack the loads.

On many tracks, cut with axes and heavy knives, bamboo is plentiful, and care has to be taken to ensure that men and horses are not spiked by the sharp-pointed canes.

Glissades—steep clay banks, up to 100 yards in length—have to be crossed. Down these the horses sit and slide, while the men help to reduce momentum by taking quick grips on saddlery as the animals pass. Going up, animals pause and rest every few yards. Frequently, while taking such breathers, they lean against trees.

Where undergrowth is not particularly dense, horses sometimes wander off the tracks and become caught by their packs between the trees. They have learned to stop instantly, back out and return to the track.

Pack transport men claim that their animals show a reciprocal understanding. They will travel independently, with the reins thrown over their heads, and will fearlessly follow wherever the men lead. They say, too, that when men are injured and carried back on their horses, the horses travel with more than ordinary care.

The medium-sized mule is said to be better at picking his way than a horse, and also more sure-footed. The mule will carry a horse-load.

But there is one catch about the mule that many soldiers know. He will eat anything—camp and all, if there happens to be a camp and close watch is relaxed.

*Department of Information, Commonwealth of Australia.

SOVIET TANK F

by Major General Mikhail Katukov, Red Army

TODAY the Red Army possesses more tanks and other technical means of warfare than in the first months of war. It has acquired more experience and skill. Cadres of tank and antitank men have grown up —men who have a perfect command of antitank rifles and can well wield combustible bottles and antitank grenades.

Tank engineering works, which have been evacuated into the far interior of the country, are producing more machines on their new location than they did on the old. Many of them were evacuated in sections, and each section was set up in a different city. Now, in place of a single huge works, there are five or six that function at full capacity. On literally waste land, huge shops and factory blocks sprang up in the course of a few weeks. Produced there are the T-34's or medium tanks, which are the most numerous in the army; also, the invincible KV's which strike such terror into the German soldiers.

Left: **Guards Major General Mikhail Katukov, commanded a Soviet Tank Division in the 1942-43 winter offensive.** ***Below:*** **Young tank builders, assembling KV tanks, compete in speeding up the output. The KV's shown here have the new all cast turret.**

FIGHTING

Tank crews from the front very often arrive at the factories to take over a consignment of machines. Here, in the shops, they tell the workers what improvements and alterations in the construction of the tanks have been found necessary by the "battle tests" to which the tanks have been subjected. The constructors take these remarks and instructions into account in their further work, and the tanks consequently become ever more formidable and powerful.

In the actual course of battle, Soviet tankmen have gained experience and applied new methods of fighting—tank ambuscades in defense, shock-group maneuvering, employing tank-borne infantry during attacks, interspersing tanks among storming groups when charging against forts and pill boxes, etc.

Tanks in Organized Attack

At the beginning of the war, the Red Army tank troops were organized into divisions. Battle experience has shown, however, that these units were unwieldy and inconvenient for managing. The tank divisions have since been broken up into smaller units and reformed into brigades that are more pliable on the battlefields.

On one of the sections of the Western Front, the 10th German Tank Division had succeeded in wedging into the defensive units of the Red Army, and the high command ordered a small tank unit to wipe out the enemy wedge—no easy job, since the Germans had had time to entrench themselves firmly in this position.

Two villages, situated at the edges of the wedge, had been turned into strongholds by the Germans, who had constructed pill boxes, dug tanks into the ground, fitted out blindages, set up barbed wire fences, and laid mines around the approaches to these villages.

According to the plan of the high command, seventeen tanks were to take part in the attack on the entrenched German line, and the whole attacking group was to form in four sections.

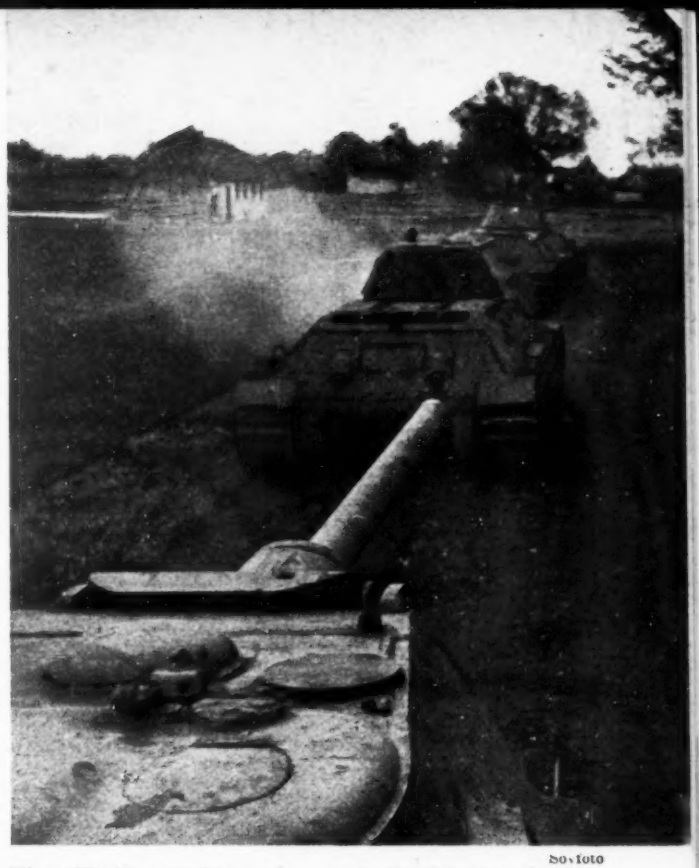
Three tanks were to advance forward for purposes of reconnaissance and bear the brunt of all the enemy fire in order to establish the location of the German guns.

The next two tanks, maneuvering all the while, were to support the first three with their guns.

The third section of six tanks was to crush the enemy's antitank defense.

Following them would come the fourth group of six tanks, whose job it was to insure the advance of the attacking infantry that would follow right after the tanks.

The command of the tank unit was applying here the tactics of quick, forceful darts. *The tank troops acted very much like the Cossacks—those in front dart forward, while those in the rear support them. Those in front withdraw, and those in the rear advance.*



Sovfoto

Three T-34's move into action on the Southwestern front.

The tankmen prepared for these offensive operations with the greatest care. Each machine was carefully tested. Fire extinguishers were examined and made easily accessible. Turrets were given a fresh coat of white paint to insure their camouflage against the snow.

The morning scheduled for the attack was cold but clear. The motors of the tanks began to hum. Attired in white camouflage suits, the infantry parties came up with their tommy guns slung across their chests. At exactly 9:30 A.M., the first bursts of the artillery sounded. Soon, everything fused into a single roar of ever increasing explosions.

At 10:00 A.M., the first three tanks started off in third gear along the highway. They opened up a running fire, and a rain of missiles came in answer to their shots. The Germans put up a solid line of fire before the three tanks. Antitank guns, tanks that had been dug into the ground, and soldiers hidden in dugouts built in the village cemetery—all opened fire at once. A heavy enemy shell hit the turret of the first tank, and it began to burn, but the crew used the fire extinguisher and put out the flames. Two German long-range guns were observed set between two dug-in tanks to the left, and with a well aimed shot from the tank's gun, one of them was put out of commission and its gunners killed.

Under cover of tank fire, Soviet infantry now advanced boldly. The Germans first met them with heavy fire from their dugouts and concealed gun emplace-

ments. Soon the Germans started to counterattack with their own infantry, marching in erect formation, and all the while, kept a running fire from their tommy guns. One company of their tommy gunners was mowed down by the tanks' fire, and the rest turned and fled. The German counterattack had failed.

The fierce battle continued right until the tankmen had driven the Germans out of their entrenched line. In this one day's fighting, the tanks and infantry in organized attack had destroyed 21 tanks, 8 antitank guns, 2 heavy guns and had captured 3 tractors, 2 antitank guns, 14 trench mortars, guns and other armaments.

A Tank Brigade in Defense of Moscow

At the beginning of October, 1941, Guderian's German tank forces broke through to Orel and took the city. The Soviet command found itself with one tank brigade available, and it was this brigade that was assigned the defense of the roads to Tula and Moscow, pending the concentration of other troops.

For eight days the tank brigade engaged in fierce fighting with the enemy, which flung against this one brigade two of its tank and one motorized division—a total of three divisions against one brigade. The Soviet tank unit accomplished its task and inflicted heavy losses on the enemy.

This success was due primarily to excellent reconnaissance, which by virtue of the unit's exposed flanks, was conducted along a wide front; a system of pseudo positions; close interaction of all classes or arms comprised within the brigade; able and efficient interspersing of motorized infantry among the various battle units; tank ambuscades; and the maneuvering from far behind the lines, of groups of tanks that constantly attacked the enemy from the rear.

Captain Alexander Burda, whose tank exploits won him the distinction of "Hero of the Soviet Union."

Two BT-7 Tanks on Reconnaissance

On reconnaissance duty, tankmen frequently make long runs behind the enemy lines and often penetrate as far as 50-60 kilometers to the rear. The scouting troops seldom return without some catch and consider it a disgrace to come back to the unit with empty hands.

On a certain November day, two BT-7 tanks, with a party of reconnaissance scouts on board, made their way far behind the enemy lines. After making sure by their observations and questioning that German tanks and infantry were present in the near-by villages, the group started back. But not far from the front lines, they learned that there was an endless row of enemy tanks and cars moving along the highway.

The Soviet tanks came out onto the highway and, seeing the fresh tracks of armored cars, set out in pursuit. Soon the light BT 25's—"Betties"—overtook two German armored cars. The crew of one of them fled in panic, and the other was hit by a shell and went up in flames at once. The German crew hadn't even time to get out of the car. After stripping the remaining car of its guns and taking all the documents, the reconnaissance tank returned to base unharmed.

At six the next morning, the same reconnaissance tank set out on another mission.

The weather was very bad, and visibility almost nil. At twenty meters nothing could be distinguished. The snow, swept into the tank by a cold wind, covered all the instruments with a thick layer, and every 50 meters, the driver had to stop and again grope his way forward.

On approaching a village, the reconnoiterers noticed a 7-ton truck and five Germans rummaging around it. A round of machine gun bullets finished the whole group, and the truck proved to be half full of poultry and other local products of which the Germans had robbed the population. After returning these stores to the villagers and questioning them as to the movements of German troops, the tankmen took the truck, along with engineering equipment and secret mine locators, back to their unit under its own power.

A Company of Tanks Attack from Ambush

When Captain Alexander Burda, commander of a company of medium tanks, received orders to reconnoiter the German forces advancing on the Soviet town of X, he covertly led his tanks along the highroad and camouflaged them in the woods.

According to the scouts' reports, it was at this spot that the German troop column would pass. This information was correct, for at exactly 8 A.M. the Germans began moving towards the town.

Like a venomous snake, the German column emerged onto the road. In front crawled the panzer vehicles hauling antitank guns. These were followed

According to enemy sources, this T-60 light, fast tank weighing 8 tons, has a speed of 40 kmh, 20mm armor, and carries a 20mm gun and 7.62mm machine gun.

by medium tanks, then armored transport vehicles, and finally two or three heavy tanks—a total of two regiments of motorized infantry in all.

It required utmost patience to wait until the whole column had entered within the zone of ambush fire before attempting to crush and destroy it. Such were the orders of Captain Burda, but one of the men of his tank-borne infantry failed to hold out and opened machine gun fire when the head of the column had approached to within 800 meters.

The circumstances were such that they had to go immediately into action and attack the enemy, in order not to allow him time in which to take up formation on a dominating hill. At Burda's command, the tanks in ambush opened target fire against the enemy's armored transporters and tanks, while one platoon leaped from ambush and, with the treads of the tanks, began crushing the Germans who were caught napping by this onslaught.

At the same time, a soldier standing on the tank, shot point blank at the Germans, first from his rifle and then from his service revolver. He emptied the chambers of both weapons and, after accounting for 30 enemy soldiers, leaped off the tank and gave chase to a German officer, shot him down, and took his documents and revolver.

The enemy troop column was scattered, and it retreated in disorder, back to the town from which it had started. Only one battalion, turning left, made a detour of Burda's group, but they came up against a Soviet tank in ambush. This tank crew refrained from opening fire until after the tail end of the German column had entered the gully. Then they opened shrapnel-shell fire, while the tank's radio operator mowed the Germans down with machine gun fire. Very few men of the German battalion climbed safely out of the gully; most of them were laid low by the fire from the ambushed tank.

Infuriated by this unexpected resistance, the Germans attempted to wipe out Burda's group from the air, but the experienced commander foresaw this move and withdrew his tanks to the vicinity of the nearest village, and for thirty solid minutes thirty German bombers diligently bombed and machine gunned a blank spot.

Lone T-34 vs. Infantry Battalion

A young lieutenant commanding a tank platoon, was once returning to his unit after having his T-34

German tanks left behind during the Nazi retreat from Stalingrad, January, 1943.

tank repaired. The tank crew decided to call a halt in one of the small towns on their road and freshen up before rejoining their unit.

While seated in the barbershop, they learned that a column of German infantry with artillery and motor vehicles was approaching the town and that they were to hold up the column with this one tank until the arrival of Red Army units which had been summoned.

The young officer explained to his crew the forthcoming operation, which was no easy task.

The crew took its places, and the tank headed to meet the oncoming enemy. Some distance short of the village, the Soviet tank ambushed in a small grove in such a position as to have the entire road under range of fire.

A few minutes later the head of the German column appeared around a bend in the road. In front proceeded motorcyclists, then came the Staff H.Q. car. The antitank guns and infantry on foot brought up the rear. So sure were the Germans of the success of their contemplated attack that they did not even send scouts ahead.

The Germans moved ever closer, but the tank crew held their fire until the whole column was visible on the stretch of road. The very first shots wrecked two enemy guns, and in the face of the third gun, the tank rushed forward into the road to meet the enemy.

The surprised Germans had no time to fire a single shot, and the Soviet tank, smashing into the enemy column, crushed everything in its path. Its cannon and machine guns kept up a continuous fire, until the Soviet infantry arrived on the scene and put the finishing touch to the Nazis. Everything was over. The battalion of German infantry had been dispersed and partly destroyed.

The tank crew jumped out and began collecting the trophies. They stacked 13 tommy guns and 6 trench mortars on their tank, then took in tow ten motorcycles and the one remaining antitank gun with its full complement of shells. In the wake of the procession, a sergeant brought in the staff car, which was found to be the most valuable trophy of all. It contained important German maps.

Well satisfied with the results of this skirmish, the tankmen returned to the barbershop, had their shave, and then set out for their unit.

Two Tanks vs. Antitank Guns

One evening, two tanks took up their position ready to go into attack. From a small hill, the village was clearly visible, but the Soviet tanks were well camouflaged, and the Germans failed to detect them.

When the two tanks charged down the hill, one behind the other, the Germans were caught unawares and began to scatter in all directions, but the two Soviet tanks caught them at every point.

While one tank was wreaking havoc among the Germans in the southern outskirts of the village, the other tank was crushing them on the northern outskirts.

At this juncture some German antitank guns were brought into play, and an enemy shell jammed the transmission on one tank so that it was able to travel only in reverse gear. The men continued to fight, however, and succeeded in putting two of the guns out of commission.

German grenade throwers began to creep up toward one tank, and the driver had to keep maneuvering the machine from one side to another in order to protect the treads.

Suddenly another shell hit the tank, and this time the blow served to dislodge the shell that had been stuck in the transmission. The tank, now able to move forward, dashed for the German gun and crushed it to a pulp, together with its gunners.

When the two tanks finally left the field of battle and went into ambush not far from the village, they had crippled two tanks, destroyed three antitank guns and not less than two companies of infantrymen.

Conclusion

For two and a half years the Red Army has fought against the enemy and inflicted terrific losses upon him. Even when temporarily retreating, it has dealt the enemy crushing blows and destroyed much man power and matériel.

Germans Tow Stalled Vehicles*

THE magnitude of the difficulties that may be encountered in salvaging stalled combat vehicles has been clearly revealed in the campaigns in Poland and Norway, on the western front, in the Balkans, in Africa, and especially in Russia with its severe winters. In peacetime training and maneuvers, such problems could be solved with the equipment at hand, since the standard towing truck, especially the eight and eighteen-ton tractors, had all the power that was needed. Under war conditions, however, it is often necessary to salvage vehicles so badly damaged that their resistance to towing is several times that of a vehicle that is merely "out of order." In other cases, vehicles may be so wedged between trees or sections of masonry that it is impossible to move them by simply attaching a tractor.

The only salvaging equipment that has been found suitable for such work is the 18-ton tractor, which has a tractive force of about 20,000 pounds and is provided with a winch having a maximum tractive force of about 15,400 pounds. This tractor is designed to function as an auxiliary, and its tractive force has met the requirements under all normal conditions; for example, in the towing of equipment for the artillery. However, the provision of additional strength necessary for salvaging operations presents many difficulties, and in the case of tractors not used for salvaging, such added strength merely becomes a load to be carried.

In many cases the regular winch, when correctly used and supplemented by a loose pulley, can give very good service. Not only can the tractive force of the winch be exerted in various directions by means of pulleys (the cable should pull as much as possible in a direction parallel to the axis of the tractor), but on the principle of the bottleneck, the tractive force may be doubled or trebled whenever several pulleys are available.

An overloading of the cable itself should by all means be avoided. To prevent this, the older types are provided with a safety device employing the shearing principle, while the newer ones have a slipping coupling. Sharp edges and knots must be avoided, and the cable must be handled carefully and given regular attention.

In working with the winch, special attention must be given to the anchoring of the tractor and the firm attachment of the pulleys so that the tractor will not be pulled toward the object which is to be moved. This may be done by means of steel cables or chains attached to a tree or to stakes driven into the ground.

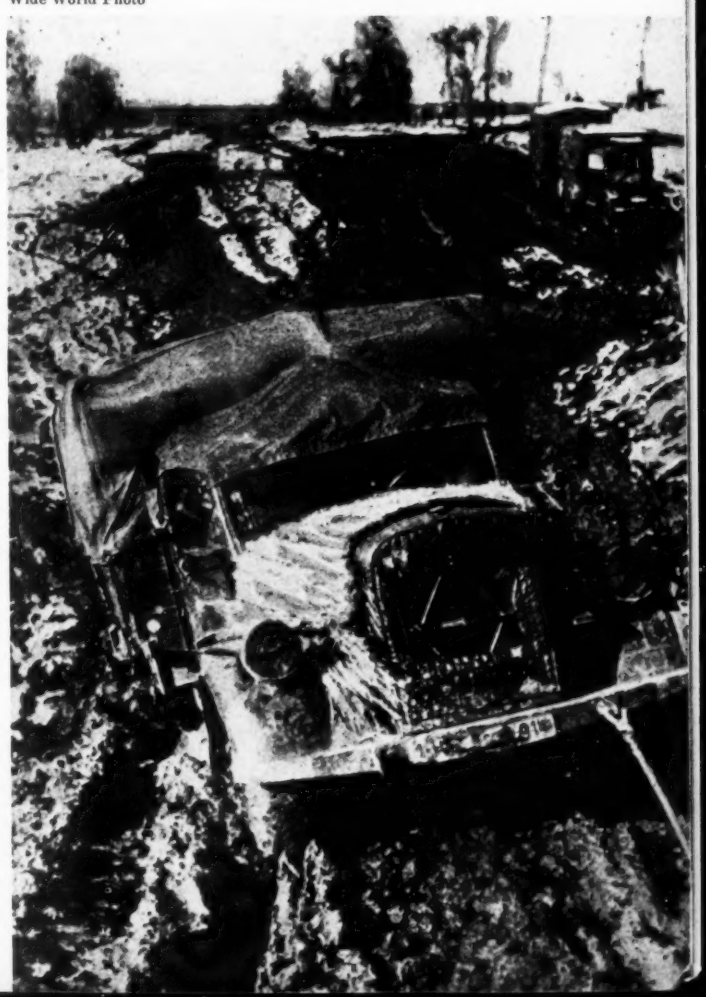
If the tractive force of one tractor is not sufficient, it is not always necessary to resort at once to the double or triple pulley, especially when there are several tractors available. Two tractors may be employed in tandem simply by attaching the leading tractor to the front coupling of the rear tractor by means of a cable or towing rod. If additional tractors are used they must not be hooked on ahead, for in that case the tractive force of all the leading tractors would be exerted through the rear vehicle, and the front and rear cross members of the frame are not capable of taking such a pull.

When it is necessary to use more than two tractors, care must be taken that each exerts its force where it is needed. In any case an easy, steady pull by all tractors is necessary, and this must not be left to the drivers alone but must be directed by means of signals from one place.

A loose pulley belongs with every chassis. Stakes for driving in the ground, hooks, shackles, and steel cable and chains are easy to obtain, although one can never have a sufficient quantity of them. Provided with this equipment, any heavy tractor can be employed as a salvaging tractor and, except in special cases, several together will be able to meet all demands fairly well.

This photo, received from Berlin by way of neutral sources, gives a graphic idea of what the German Army had to contend with on the Russian Front. Note cable towing truck.

Wide World Photo



*A digest of a German article in *Die Panzertruppe* September 1942, translated at the Command and General Staff School, Fort Leavenworth, Kansas.

With Tank Attack

*by Major F. Abolin**

SOVIET SA

NO tank attack should be launched unless full information is available about the enemy defenses. This information is obtained by means of deep reconnaissance by sapper-scouts, who are distinct from sapper-engineers. Both branches of sappers send observers to the perimeter of the enemy defenses to locate the positions of the German mines and determine the type of their defense.

Then the commanders of the tank and sapper units, with a detailed chart of the enemy's defenses and minefields before them, map out the route for the tanks. Bridges and corduroy roads are built to the outer line of the enemy defenses, and signposts are set up to mark the route.

It must be admitted that tank attacks are not always prepared as carefully as they should be. Close coordination is sometimes lacking between tank troops and sappers. A striking example of this was the case of one of our tank units that got stuck before they reached the perimeter of the enemy's defenses. This would not have happened if the commanders of the tank unit and the sapper engineer detachment had attended to the essential preliminaries and laid proper roads for the tanks.

In order to correct the mistake during the course of the battle, two lieutenants of the sapper unit first selected three routes. Then working under enemy fire after dark, their men made brushwood roads and built four bridges. The following morning, the tanks, accompanied by the sappers armed with mine detectors and explosives, moved forward with little difficulty.

Thereafter, whenever the column reached a minefield it halted. The sappers jumped from the leading tank and put the mines out of action. Then they blasted away the steep walls of German antitank ditches and laid fascines which enabled the machines to proceed.

The wisdom of including sappers in tank attacks has been thoroughly proved. The sappers, however, must be protected from enemy fire and should be carried inside the tanks whenever possible; else, they should be hidden securely behind the turrets.

In a recent offensive operation, a sapper with one of the tanks hopped out when the tanks came to a minefield, and with the aid of two other men put 15 antitank mines out of action. While these sappers were at work, the tanks neutralized the fire from enemy machine gun nests, automatic riflemen, and antitank guns.

This particular tank unit had a sapper reserve that proved extremely useful after the machines had forced their way into the enemy defenses. As the Germans retired before Soviet tanks and infantry, they had hastily laid mines among the thick grass and growing crops without any special concealment. The sapper reserves, going forward rapidly, put 250 of these mines out of action and set up beacons along the main routes of the advance to indicate safe passages for the rest of the tanks.

During this retreat the Germans had mined a bridge, which blew up as soon as the leading Soviet tank began to cross. Fortunately, the tank was not damaged, and the bridge was not wrecked sufficiently to prevent the tank from proceeding across. A platoon of sapper-engineers, carried in the following tanks, quickly erected a makeshift bridge. Where the roads were bad, they laid logs about two feet apart, and where necessary placed ready-made mats about four or five yards long and a yard wide. The tanks moved forward over this route and continued to harass the retreating Germans.

It was this coöperation between sapper-scouts and sapper-engineers that on several occasions contributed to the final success of the tank attack.

*Red Army.

Sovfoto

Northwest of Stalingrad, Sappers remove mines to clear the way for advancing troops.

SAPPERS On Independent Missions

*by Lieutenant Colonel A. Alexeyev**

HOW does the sapper artillery operate? Its basic materials are rocks and inflammables. Hurled out with great force by a powder charge, they sweep away everything in their path for a distance of up to 100 meters. In the absence of rock, the "rock-and-flame thrower" is loaded with metal scrap and pieces of rails. As shown in the course of recent battles, besides destroying barriers and wiping out manpower, these rock-and-flame throwers have a big psychological effect on the enemy. There have been cases when, lacking the necessary shelters, his troops have run in a panic when the rock-and-flame throwers were set off.

During one offensive operation in the foothills of the Caucasus, the sappers were set the task of making passages through barbed wire entanglements and mine fields located about 50 meters from the German gun emplacements. This work had to be carried out just before the attack and over a broad front.

The commander of the sapper battalion tackled the problem as follows:

For four days the engineering scouts made a careful study of the terrain, and calculated the number, size and location of the rock-and-flame throwers to be used. The night before the attack, the sappers crawled over to the enemy entanglements and under cover of their own artillery and mortar fire, which drowned out the noise of their work, set up 100 rock-and-flame throwers in two rows on a two-kilometer stretch. They were placed in such a way as to strike at the German troops, besides clearing paths through the barbed wire and mine fields.

At the fixed hour, a red rocket flew up, the signal for the sapper artillery to go into action. Two massive curtains of burning rock and flame poured down on the Germans with terrific force, and under its cover the Soviet tanks and infantry went into attack. Before the Germans had time to recover from the shock, they found themselves cut off from their second line. All their attempts to resist were unavailing.

Burrow Into Defenses

Underground mine warfare is another method used by the sappers in fighting for important heights and for separate buildings constituting powerful strongpoints within towns.

On one sector of the Central Front the Red Army units captured the outskirts of a large inhabited point. The Germans were entrenched in a number of brick buildings with a strongly fortified one in the center. Soviet forces attacked three times, but could not drive the Germans out. The sappers laid two charges of 50 kilograms of explosives under the building wall, and made a breach of about 10 meters in diameter, but even then enemy fire prevented our infantry from taking the building.

It was then decided to dig a tunnel under the building and blow it up together with its defenders. A shaft was sunk in a hollow some 40 meters from the building, and a tunnel 110 by 90 centimeters and 43 meters long dug beneath the frozen ground. The earth was carried out in munitions crates to a near-by house, to be removed during the night and hidden under the snow in shell holes and ditches. The tunnel was built without supports of any kind. Under the two-story building over an area of 46 by 34 meters the sappers laid charges of explosives weighing some 1,200 kilograms. After the explosion all that was left of the building was a huge pit.

Sappers often have to resort to ruses in the course of their work. On one sector last autumn, six boats were loaded with rock-and-flame throwers and detonator caps, and sent over the river to the enemy side under sail one night when the wind was blowing toward the Germans.

The boats went off with a roar as the detonators exploded one after another, creating the impression of steady firing. The fascists opened a torrent of fire at the boats and sank one of them. But the rest did their work. A hail of flaming rock flew at the enemy.

As a result of this operation, the artillerymen were able to locate a number of hitherto elusive German gun emplacements, which they wiped out the same day.

**Moscow News.*

Sovfoto

Soviet Sappers clear a road of mines.

Tank Destructio

Sticky Grenades, or other expedient demolitions, are good ambush weapons.

Ambush Site shown at right is only fair. Lacks sufficiently confining terrain, woods. Road, ideally, should be in ravine; however, combat will not often offer ideal setup.

by

*Lieutenant Donald G. Merritt**

THE tank ambush is one of those handy tricks employed by competent soldiers that so often mean the difference between victory and defeat in today's fast-moving war. The ambush was used to advantage by the Russians in wooded country; also by the British in the early stages of the African campaign, when small groups of Nazi tanks were cut off and destroyed in desert wadis.

American forces, too, have employed ambush tactics. In one Sicilian incident, parachute infantry bazooka teams knocked out five of eight Nazi tanks from a hastily prepared ambush. Indications are that, with our forces gradually advancing into close European terrain, the ambush will assume even greater importance in combat planning.

The tactics department of the Tank Destroyer School has taught tank ambush fundamentals both as an expedient method of tank destruction and as a means by which small groups of determined men can adequately protect likely tank approaches to bivouac areas or gun positions, cover dead space in fire sectors, limit tank movement in close or wooded country, harass small tank reconnaissance units, or continue the mission of tank destruction should the primary TD weapons be disabled.

*The Tank Destroyer School.

The instruction given at the TD School is designed to present a general ambush plan from which officers and men will be able to set up an ambush to meet any conditions presented in combat. The first requirement is an ambush team. Such a group may consist of men who have lost their vehicles, men from the tank destroyer pioneer platoon or available overhead, or a set group of especially trained men within the battalion. Every man in the unit, however, should be sufficiently versed in ambush tactics to be able to take part after receiving the necessary details about the particular ambush at hand.

For instruction purposes, the TD School uses two possible teams. The first consists of a security section and a TD section commanded by a platoon sergeant. This gives twenty-three men—enough to take care of four tanks. The team has easily concealed transportation, a good knowledge of close combat weapons, and sufficiently heavy armament. Its equipment includes appropriate arms and demolition equipment to enable it to perform its mission.

The second group is made up of one complete reconnaissance platoon with equipment. On occasion, ambush teams may even consist of but one security section. The size of the group depends largely upon the number of tanks involved.

ction from Dismounted Ambush

Training

The special training given is standard tank destroyer instruction, greatly intensified. The habits and limitations of tanks are studied carefully. Thorough familiarity with the organization of the tank crew, its weapons, visibility, and armor is stressed, as well as vulnerable points, and the dead space that lies around the tank itself. The men are trained in the use of the close combat weapons and in making demolition expedients. The type of terrain favored or avoided by tanks is discussed, with an eye to picking good ambush locations.

Ambushers are mentally and physically prepared for the technique of the ambush itself. A practice site is picked, and the assignment and exact spot for each member of the team are designated and marked for rehearsal purposes. The fundamental rule of the ambush is surprise, and the basis of surprise is often the absence of strict rulings or set procedure. After the essential procedure is learned, every ambush must be a rule unto itself. Plans and technique should be flexible enough to vary with the unexpected. It is a battle of wits and initiative, not of tactical dogma.

General Requirements

On the other hand, there are certain general guides which provide the outline for each ambush plan. The following should be provided for, according to the demands of the situation and the *time available,* before the ambush is to take place:

1. All-round security, with observers or scouts to front, rear, and flanks, and the establishment of an efficient and practical method of communication with the main ambush party.
2. A means of disposing of the enemy reconnaissance elements after they have passed the ambush area.
3. A method of stopping the tanks.
4. Smoke between tanks to isolate them from each other, and to allow the ambush crew to get in and use their weapons.
5. A team of men assigned to the destruction of each individual tank and crew.
6. Complete concealment of men, vehicles, and weapons.
7. The placing of machine guns to delay enemy motorized infantry which may be following the tanks.
8. Designation of a rallying position.
9. Rehearsal.

There are several points that require special attention.

Prior to planning the actual engagement, thorough dismounted reconnaissance of the ambush site and the surrounding area should be made by the key men of the ambush party. All weapons, equipment, and vehicles must be inspected closely before leaving the bivouac area. The terrain between the site and the rallying position is also reconnoitered, and all information given to the ambush team. Orders should necessarily be clear and simple, so that there is no chance of misunderstanding.

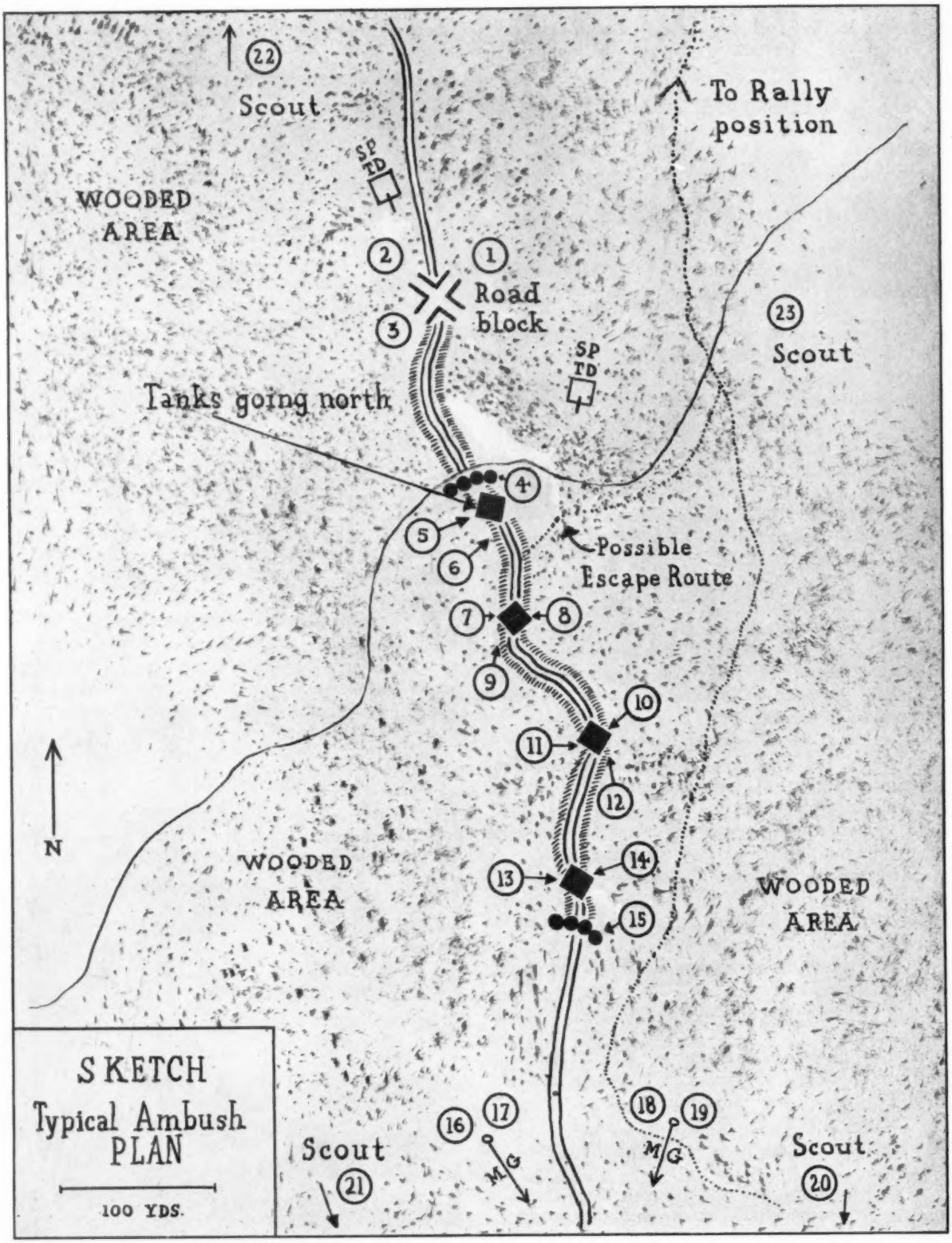
All personnel must be familiar with the plan as it concerns all phases and teams. To insure coördination, all men must know the mission and actions of their fellow teammates. Lastly, every installation in the ambush should be checked personally--signals, location of weapons, disposition of men, and above all, concealment. No stone can be left unturned, for once the trap is set, success depends on the correct functioning of all details. Central control is gone when the action starts. The commander has to depend on his men, and they must be able to depend on themselves.

Plan of Execution

The reconnaissance element for a platoon, or less, of tanks may be one or two motorcycles or other light reconnaissance vehicles. They should be eliminated noiselessly by a detail posted just past the ambush site. This can be done by three men with small arms, plus a steel cable for motorcycles, or an effective barricade for wheeled vehicles.

Stopping the first tank in the ambush is not difficult. From a concealed foxhole or from natural concealment as near the road as possible a man pulls a mine chain across the road—timing his pull when the tank is within fifteen feet so the first tank cannot avoid the mines. The mine chain consists simply of AT mines tied one foot apart on a rope. If no mines are available, a pivoted board loaded with explosives can be used.

M10 Tank Destroyer, in defilade here, is primary TD weapon; can be used in dismounted tank destruction plan with the 3-inch gun covering possible avenues of escape.



The instruction given at the TD School is designed to present a general ambush plan from which officers and men will be able to set up an ambush to meet any conditions presented in combat.

As additional insurance, when the ambush is staged in a defile, a mine chain can be pulled behind the last tank, and the trap closed. Any side roads, or breaks in terrain or growth along the ambush site that would allow tanks to escape, can also be blocked with mines or by a bazooka team. If there is ample concealment, AT guns, towed or self-propelled, can also be spotted at these avenues of egress, laid on the opening.

The placing of smoke pots between tanks is worked simply by stationing men at the estimated interval left between tanks when the tank column is halted. These men must not fail, as any tank left unscreened will get covering fire from the tank behind.

A vital factor in the coördination is the designation of a specific team for the destruction of each tank. A team of not less than three men should be charged solely with the destruction of one particular tank, and each team member must have a specific responsibility.

The teams are placed as near as possible to the road, covered and concealed, and at the place where their particular tank will probably stop. Number 1 man pulls the mine chain, stops the tank, and closes in with sticky grenades, pole charges, or other demolitions. As soon as the tank stops, number 2 man attacks it with automatic small arms fire to keep it buttoned up and to prevent the escape of the crew. Number 3 man sets the smoke screen and, coming up through the undergrowth from the rear, closes in with Molotovs or incendiaries—concentrating on air louvres and intakes.

The action must be conducted simultaneously, swiftly, and smoothly with the assault on all tanks taking place at the same time. Hand-picked men, hard training, rehearsal, and coördination show up here.

A study of the employment of enemy tank forces indicates that a tank platoon used as a column point or on reconnaissance is supported by motorized infantry. The ambush plan should include some means of delaying this force. One or preferably two machine gun teams can effect this delay. The guns should be given the best possible field of fire along the route leading into the ambush. Their mission is to delay infantry or any support following the tanks, force it to deploy, and pin it down for the few minutes necessary for the destruction of the tanks. The signal system must be planned especially to enable these guns to move out in time to join the main ambush force at the rallying position.

All-round security is another essential of the ambush plan. The machine guns covering the rear must be supported by flank scouts. These security men guard against mounted and dismounted enemy reconnaissance elements ahead of the tanks. They also warn of the approach of the tanks themselves. Foolproof voice or other prearranged signal systems must be devised for these scouts, and the entire ambush crew made familiar with them.

Next in importance to the success of the ambush itself is the safe withdrawal of the personnel and vehicles. If the ambush is well planned and rehearsed, if surprise is complete, and the men are capable of dealing with the unexpected turns of action that inevitably arise, the casualty list should be negligible. If the withdrawal is equally well planned and rehearsed, the loss in men and vehicles should not be increased.

Each man should be aware of the fact that less than five minutes elapse between the stopping of the first tank and the completion of the destruction. All members of the party withdraw as soon as their particular mission is completed. The location of the rallying position itself and the alternate routes must be explained clearly to all. The rallying position should be as close as is feasible. This depends upon the terrain, tactical situation, and locaton of friendly and enemy troops.

The last step in the general plan is the rehearsal. The time available, after the ambush is planned and set up, determines the nature of the rehearsal in actual combat. Many circumstances do not allow for rehearsals of every ambush on the ground, nor can they always include the details peculiar to the situation. But whenever possible, and especially in training, a rehearsal should be planned and executed.

Although surprise and the resulting confusion to the enemy are the basic elements of the tank ambush, they both depend on clear planning and the confidence, initiative, and ingenuity of the individual. It is the elemental, almost primeval, instinct of planning and springing the trap on the unsuspecting game upon which the success of the engagement depends. Clever, wily, and courageous, the tank ambusher in reality fights a man-to-man battle. That is what makes it a sporting venture, as well as a handy ace to have up one's tactical sleeve.

Dismounted Tank Destroyer in foxhole awaits signal to heave Molotov and follow through with small arms fire on ambushed enemy armor.

The THREE C's - Cover-

*by Captain George E. Price, Cavalry**

THE soldier's job is to stay alive and continue fighting. Simple, protective methods for concealing himself by artificial and natural means will enable him to keep on living, shooting, and killing.

Instruction should stress the old fact that the enemy has little chance to hit what he cannot see. Cover, concealment, and camouflage are vital subjects. Continued throughout the training period, effective camouflage practices must become second nature to every man in the unit. The earlier the soldier gets the "Know Why" and the "Know How," the earlier his unit can take the field and fight effectively.

There is only one way to make sure of it.

What men do in training, they will do in combat. The truth of that statement has been established by authoritative reports of our observers on the fighting fronts.

During training, nothing should be taken for granted. Men in combat do not suddenly acquire the ability to do things that have been omitted in their training. The activation of the instinct of self preservation cannot be depended upon by unit commanders to make up for deficiencies in their instruction. Second nature actions and reactions are initiated only by drive, foresight, sweat, and uncompromising attention to the smallest details in training.

For the fast-moving cavalry troops, the two *fundamental* requirements of concealment are:

1. Choice of position.
2. Camouflage discipline.

The normal method is camouflage by natural means. Artificial means are resorted to only in cases of necessity.

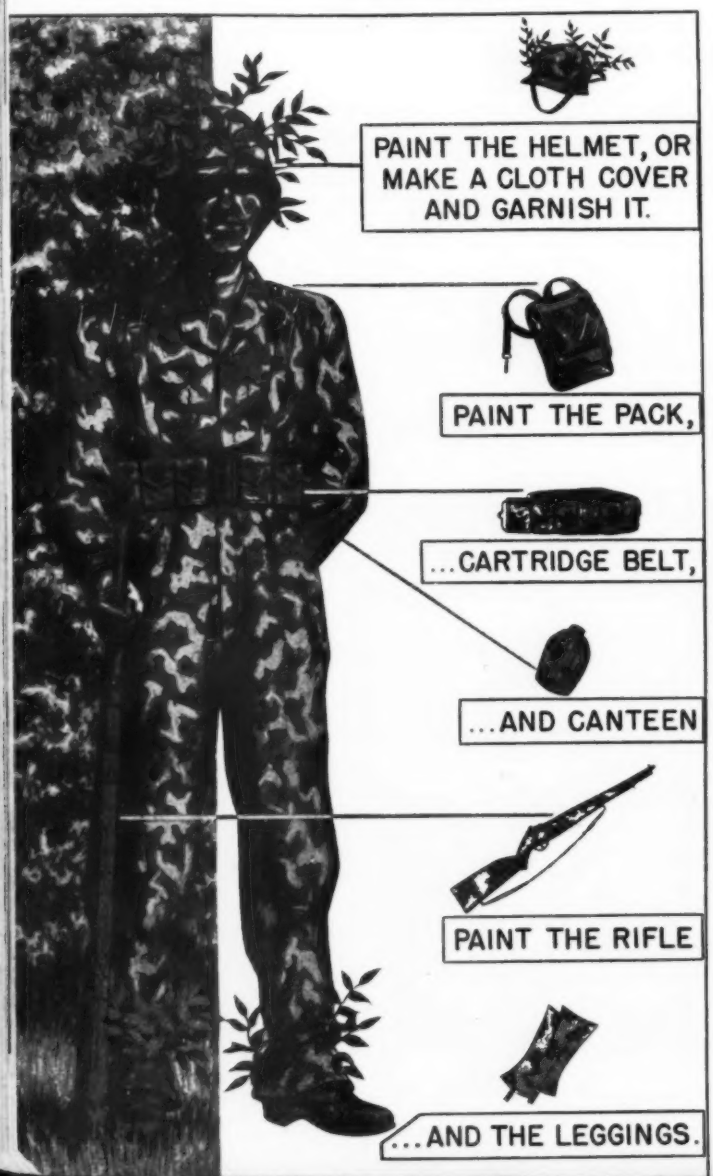
Thorough Indoctrination

To insure the success of concealment and camouflage training, leaders first must be indoctrinated. If they are convinced that the need for such training is a matter of simple logic and common sense, the training of soldiers will be conducted with the required amount of initiative and energy. Training area inertia is a fault for which leaders are responsible. Laziness in training means lives needlessly lost in battle.

Camouflage discipline is no good unless it is one hundred per cent effective. One careless or lazy man can be the cause of the destruction of an entire unit. Soldiers in training must be impressed with that fact. It is one thing to put out orders and instructions pertaining to camouflage, and quite another thing to see that they are complied with uncompromisingly and continuously. Reliance should not be placed upon the inspection reports of even trained subordinate camouflage specialists. That is a "back door" method. The drive and the impetus necessary to overcome indifference to proper cover, concealment, and camouflage practices during training must come from the top down through the channels of command. It must be relentless and exacting. *All* tactical training must be conducted under conditions as nearly approaching combat as possible.

*Instructor, The Cavalry School.

Figure 1. All equipment must be painted—any shiny surface reflects light.


PAINT THE HELMET, OR MAKE A CLOTH COVER AND GARNISH IT.
PAINT THE PACK,
...CARTRIDGE BELT,
...AND CANTEEN
PAINT THE RIFLE
...AND THE LEGGINGS.

er- Concealment - Camouflage

How does the average soldier react to the camouflage requirements during training? The well-disciplined soldier always is cautious of his personal appearance. He wants to look neat and smart at all times. Unless camouflage training is given early, it is difficult to get him to subordinate this desire to the need for camouflaging himself and his weapons. He is slow to appreciate the necessity for smearing mud on his face, dulling the high shines which certain items of his equipment have acquired under "spit-and-polish" routines.

Unless the "Know Why" is brought out strongly, the average soldier, having been required to mottle his clothing and equipment during tactical exercises, relaxes and becomes somewhat careless in taking care of his uniforms and equipment. Organization commanders should demand that their men live up to the highest standard of smartness when on pass or performing garrison duties. However, time should not be wasted by requiring men to shine or remove mottling from equipment for the usual Saturday inspections. Such a requirement is characteristic of things which in the training period retard a unit's readiness for combat. Distinction should be made between *appearance* and the *operating efficiency* of weapons and equipment.

From the viewpoint of a unit commander, to demand smartness at a sacrifice of combat principles is as wrong as insisting upon the use of close order formations in battle. Lack of smartness in a combat situation will not damage discipline any more than dispersion, which after all is a battle necessity. *We must train the way that we fight.*

Constant Practice

Good camouflage discipline requires more than indoctrination. It requires *practice*. Each man's initiative and proficiency must be such that in the absence of orders he prepares himself, his clothing, his weapons, and his vehicles or animals according to the instruction he has received. He will darken his exposed skin with mud or dirt. He will mottle his clothing and web equipment to harmonize with the environment. He will break the regular silhouette of his rifle or carbine barrel with strips of burlap. He will dull everything that shines and destroy the outline of his helmet with brush and leaves.

To make sure that the junior leaders of cavalry units understand and believe in the effectiveness of fundamental camouflage practices, the Cavalry School teaches camouflage where it should be taught—*in the field*. Under the supervision of the Department of Tactics, demonstration areas have been reserved and developed. They contain training aids constructed locally at a small cost. Similar areas can be laid out by field units.

Instruction

In the demonstration area instruction is conducted as follows: Students are transported or marched to an adjacent *assembly* area. Here they are oriented thor-

Figure 2. Good camouflage blends the individual with his background.

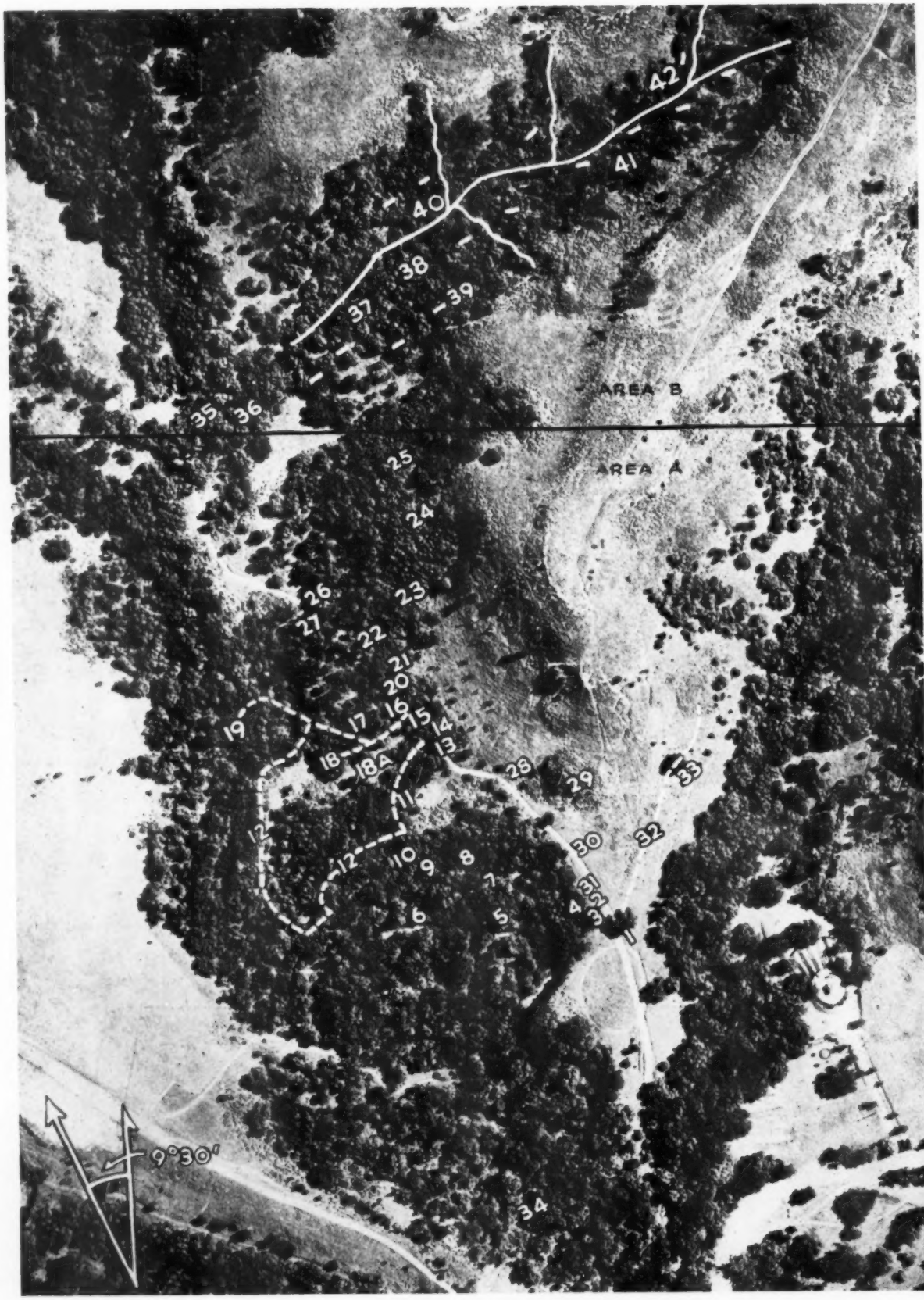


Figure 3. Camouflage Demonstration Areas. (See legends.)

Legend for Area "A"

No.

*1. Real ¼-ton truck parked first incorrectly, then correctly.
2. Concealment measures for skin, clothing, and equipment for individuals.
3. Turnoff.
4. Headquarters Section ¼-ton truck model.
5. Supply half-track M3A1 model with 1-ton armored trailer model.
6. Headquarters Section ¼-ton truck model.
7. Alarm, gas.
8. Supply half-track M3A1 model with 1-ton armored trailer model.
9. Latrine, straddle trench.
10. Headquarters Section ¼-ton truck model.
11. Path, dismounted, summer.
12. Path, dismounted, winter.
13. Turnoff.
14. Headquarters Section armored car model.
15. Turnoff.
16. Latrine, straddle trench.
17. Alarm, gas, improvised.
18. 2½-ton truck model with 1-ton cargo trailer model. 3 dull-finish water cans on 3 gasoline water heaters. I soakage pit. 1 solid-garbage pit. 1 water sterilizing bag. Demonstration of mess-line operation.
18a. Example of incorrect concealment of fox hole, shelter tent, and individual equipment.
19. Half-track M3A1 model with 1-ton armored trailer model.
20. Turnoff.
21. Headquarters Section armored car model.
22. Turnoff.
23. ¼-ton truck model.
24. Maintenance Section armored car model.
25. Maintenance Section ¼-ton truck model.
26. Turnoff.
27. Maintenance Section half-track model.
*28. ¼-ton truck model in open under cut brush to break up man-made form and shadow.
*29. Machine-gun emplacement.
*30. Half-track model dug in under low drape.
*31. 2½-ton truck model in open under drape.
*32. Track made by light tank.
*33. Light tank under tree.
34. Park for visiting vehicles.

NOTES: Items marked * are not a part of the Reconnaissance Troop Headquarters bivouac. Fox hole is present for each member of the crew of each vehicle in the Reconnaissance Troop Headquarters bivouac.

No drape is needed on any vehicle in the Reconnaissance Troop Headquarters bivouac in the present state of foliage shown; in winter time drapes almost certainly will be needed.

Legend for Area "B"

No.

35. Mountain wagon.
36. Concealment measures for skin, clothing, and equipment of individuals.
37. Rifle Platoon squad picket lines.
38. Kitchen in operation including:
    2 cavalry pack cooking outfits and/or 2 gasoline water heaters.
    Dulled utensils.
    Soakage pit.
    Solid-garbage pit.
    Traffic control tape at kitchen.
    Mess-line operation demonstrated by serving hot meal to demonstrating troops.
39. Troop Headquarters picket line.
40. Machine-gun squad picket lines.
41. Rifle squad picket lines.
42. Rifle squad picket lines.

NOTES: Prone shelter for each person above or beside his squad picket line.

Equipment generally between prone shelter and picket line.

Latrine per squad to one side of prone shelters.

Gas alarm at kitchen and one near upper end of the draw near "42."

→

Figure 4. Trail leading into Area "B." (See Figure 3.)

oughly. Each student is provided an aerial photograph of the terrain (Figure 3). The purpose and scope of the exercise are stated. The camouflage discipline required of them during the period is explained in detail. The instructor then outlines the assumed tactical situation for a bivouac. This affords the opportunity for a thorough review of security measures that normally would be taken.

The importance of the time of entry and departure is stressed. It is pointed out that air observation is ineffective during the two low visibility periods—dawn and twilight. Ground troops can and should move in this half light. It is further pointed out that these periods of half light or low visibility vary with the climate, topography, season, vegetation, and of course the weather.

The importance of prior reconnaissance cannot be overemphasized. It is essential that the best troop area available be selected and that each element of the unit be assigned a subarea which will facilitate its tactical employment when the maneuver is resumed. The march of the unit into the bivouac area should be uninterrupted by congestion of the entryways. An element should not have to halt or close up.

Initial Positions

March to the designated subarea should be made at intervals consistent with the tactical situation. For the purpose of this exercise each student is designated a leader of a billeting party and as such is required to make a reconnaissance of the entire area. He must note terrain characteristics with reference to landmarks. He must select initial positions for guides to conduct platoons to their respective subareas.

The location for the kitchen is determined by considering the following factors:

1. Centrally located if possible.
2. Best available overhead concealment.
3. Covered routes for movement of kitchen equipment, rations.
4. Water supply.
5. Good surface drainage.
6. Mess line formation.

After reports are made and discussed, the instructor conducts students to the several installations within the Area A in the order shown in Figure 1.

Area A

Demonstration Area A is developed to represent an overnight bivouac for troop headquarters of a reconnaissance troop, mechanized. Aerial photographs of the area were taken before and after the installations were made. Similarly, it was checked by aerial observers during all stages of its development. Dead ends, turn-

Figure 5.—Entrance to Area "A." (See Figure 3, No. 3.)
Figure 6.—Trail leading into the area from Figure 5.
Figure 7.—An entrance or exit to Area "A."
Figure 8.—Half-track with trailer (wooden model).

arounds, visible turn-offs, and widening of existing routes were avoided. Turn-offs are concealed from air observation by overhead foliage. (See Figure 5.) The entrance shown in Figure 5 was selected because the large tree (center of illustration) affords ample concealment from the air and is located near the main trail. The effectiveness of an entrance of this kind can be damaged seriously by careless driving and turning. Personnel and vehicles use only the *covered entrance*. This area (see Figures 3, 5, 6, and 7), however, has more than one exit. It is located far enough from the main road to insure against normal noises being heard at that distance.

The model vehicles shown in figures 8 to 10 inclusive are constructed of wood to prevent excessive scarring of the terrain. This was considered expedient because of the necessity for scheduling successive demonstrations. Before the dummy vehicles were moved into the bivouac location, real ones were moved into and out of the area once in order to produce realistic scars on the ground and to emphasize accessibility of the area.

All routes into and through the area have been wired off to prevent unnatural scarring by personnel. (See Figure 6.) Students, as well as demonstrating personnel, are required to observe camouflage discipline. They are not permitted to widen existing trails or make new ones. The entire area is fenced in to prohibit trespassing or use of it for other purposes. Figures 1 and 2 show the extent of the individual camouflage required of the individual as a part of the exercise and demonstration. In situations where camouflage suits are not available, a few dabs of paint and scraps of tape and cloth will do the job.

During the supervised tour, the features of each installation are discussed by the instructor. Students have at all times the privilege to comment and ask questions.

Area B

Area B is a model installation complete with trained personnel from the 29th Cavalry Regiment (Composite), assigned to the Cavalry School. The mounted rifle troop, completely equipped for the field, is shown in bivouac. During the course of the demonstration, this troop is fed a hot meal prepared in the bivouac area. Mess-line operation—handling of mess kits and kitchen utensils in daylight—according to recommended concealment practices, are demonstrated.

Earlier in this article it was stated that for fast-moving cavalry troops, the two fundamental requirements of concealment are choice of position and camouflage discipline. It is believed that the use of demonstration areas, such as those described, is the best method for impressing junior leaders and other cavalry personnel with the logic and the common sense of camouflage and concealment practices.

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Figure 9.—Half-track with trailer (wooden model).
Figure 10.—Half-track (wooden model).
Figure 11.—Squad picket line.
Figure 12.—Squad picket line.

oughly. Each student is provided an aerial photograph of the terrain (Figure 3). The purpose and scope of the exercise are stated. The camouflage discipline required of them during the period is explained in detail. The instructor then outlines the assumed tactical situation for a bivouac. This affords the opportunity for a thorough review of security measures that normally would be taken.

The importance of the time of entry and departure is stressed. It is pointed out that air observation is ineffective during the two low visibility periods—dawn and twilight. Ground troops can and should move in this half light. It is further pointed out that these periods of half light or low visibility vary with the climate, topography, season, vegetation, and of course the weather.

The importance of prior reconnaissance cannot be overemphasized. It is essential that the best troop area available be selected and that each element of the unit be assigned a subarea which will facilitate its tactical employment when the maneuver is resumed. The march of the unit into the bivouac area should be uninterrupted by congestion of the entryways. An element should not have to halt or close up.

Initial Positions

March to the designated subarea should be made at intervals consistent with the tactical situation. For the purpose of this exercise each student is designated a leader of a billeting party and as such is required to make a reconnaissance of the entire area. He must note terrain characteristics with reference to landmarks. He must select initial positions for guides to conduct platoons to their respective subareas.

The location for the kitchen is determined by considering the following factors:

1. Centrally located if possible.
2. Best available overhead concealment.
3. Covered routes for movement of kitchen equipment, rations.
4. Water supply.
5. Good surface drainage.
6. Mess line formation.

After reports are made and discussed, the instructor conducts students to the several installations within the Area A in the order shown in Figure 1.

Area A

Demonstration Area A is developed to represent an overnight bivouac for troop headquarters of a reconnaissance troop, mechanized. Aerial photographs of the area were taken before and after the installations were made. Similarly, it was checked by aerial observers during all stages of its development. Dead ends, turn-

Figure 5.—Entrance to Area "A." (See Figure 3, No. 3.)
Figure 6.—Trail leading into the area from Figure 5.
Figure 7.—An entrance or exit to Area "A."
Figure 8.—Half-track with trailer (wooden model).

arounds, visible turn-offs, and widening of existing routes were avoided. Turn-offs are concealed from air observation by overhead foliage. (See Figure 5.) The entrance shown in Figure 5 was selected because the large tree (center of illustration) affords ample concealment from the air and is located near the main trail. The effectiveness of an entrance of this kind can be damaged seriously by careless driving and turning. Personnel and vehicles use only the *covered entrance*. This area (see Figures 3, 5, 6, and 7), however, has more than one exit. It is located far enough from the main road to insure against normal noises being heard at that distance.

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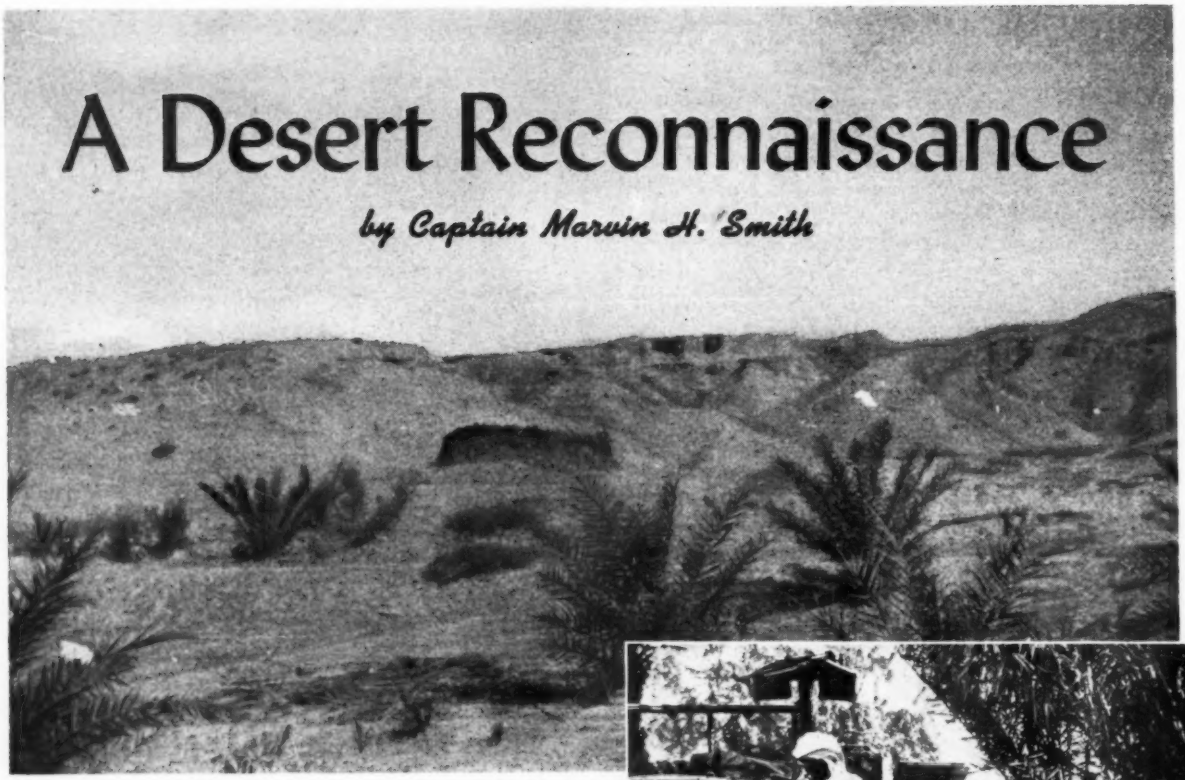
Figure 11.—Squad picket line.
Figure 12.—Squad picket line.

A Desert Reconnaissance

by Captain Marvin H. Smith



The desert south of Negrine. After one examination of this terrain, Captain Smith decided to go ahead without his half-tracks.

AFTER the German smash through Kasserine Pass on February 17, 1943 was halted, we were catching our breath in bivouac near Elma el Abiod, south of Tebessa when our battered reconnaissance company received orders from II Corps Headquarters to seek contact with the enemy to the south—a mission that was to develop into a blistering nightmare across uncharted desert sands.

We had no idea that within the week we would be feasting on camel steaks and be saved from stalling in a small desert outpost by a mysterious cache of gasoline, miles from the nearest supply depot.

The company was ordered to move at once 35 miles south to Bir el Ater, set up headquarters there, and dispatch reconnaissance platoons southward in an effort to maintain contact with the enemy.

Remnants of one platoon that had suffered heavily in men and vehicles at Kasserine were sent north to maintain liaison with the French forces. The pioneer platoon was to guard a minefield in a mountain pass just west of Elma el Abiod.

At 1600 hours, the remaining two reconnaissance platoons and headquarters platoon moved out in open column formation on our new assignment, while the rest of our battalion remained at Elma el Abiod. We were forced to close up the column to maintain contact in the blackout-driving after sundown.

A friendly Arab examines a weapons carrier mounting twin-fifties, as the men eat C rations beneath a date palm at Negrine.

At the end of a wearisome 10-hour trip over dusty, wind-swept, rocky roads, we reached Bir el Ater at 0200 hours. So far no enemy had been sighted. At daylight, after only a few hours of sleep, our platoon was further ordered to push south and west some 40 miles to Negrine and reconnoiter that area for possible tank approaches and determine proximity of the enemy forces.

It was believed that the French occupied Negrine, but we were warned that enemy patrols had been operating between our position and this little town, a fact we digested slowly as we moved out.

Rather sleepy-eyed from lack of rest and still somewhat dazed by the quick turn of events, we moved

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★Tactics Department, Tank Destroyer School.

EDITOR'S NOTE: Captain Smith and the members of his reconnaissance platoon of the 701st Tank Destroyer Battalion were awarded the *Fouraggere,* representative of the French *Croix de Guerre,* for their participation in actions with Company B, of the same battalion.

out at 0500 on the second day of our mission. Prepared for anything, and not sure whether we would meet enemy patrols or friendly French, we now advanced by covered bounds from terrain feature to terrain feature. Our relief was great when we ran into a very dejected French driver standing beside a stalled ¼-ton truck a short way out of Negrine. In his exuberance over his rescue by Americans, the Frenchman jabbered at such a rate that my meager knowledge of the language, based on two years' study in high school, didn't have a chance. By use of gestures and a plentiful sprinkling of sand drawings we were able to learn—at least we hoped we had learned—that Negrine was outposted by the French.

Somehow the Frenchman had yanked the ignition wires under the dashboard and was at a total loss as to what caused his motor failure. Within a few moments one of our mechanics had the truck purring again. It was truly a crowning achievement in Franco-American relations.

It had been a profitable meeting all around. The Frenchman rode away blessing the mechanical genius of Americans, and we moved forward, relieved by the knowledge that we would meet friendly troops at Negrine.

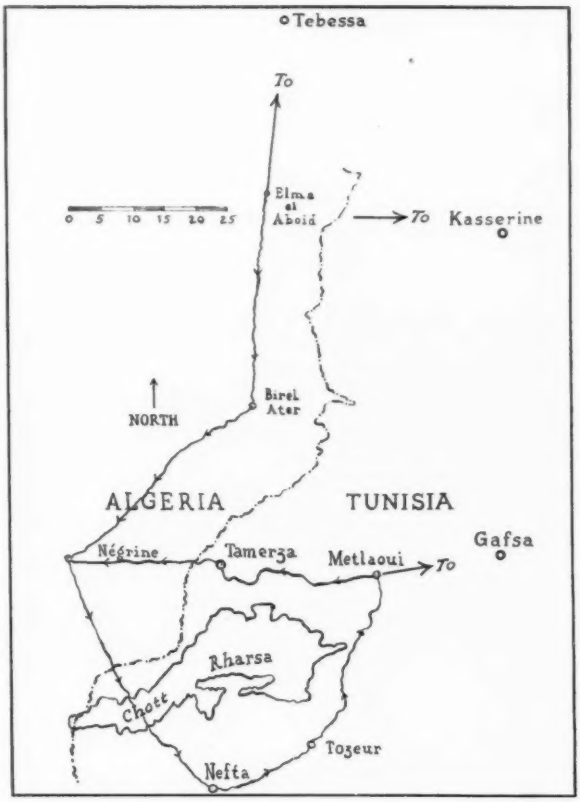
Late that afternoon, we nosed into Negrine after playing tag with frolicking herds of wild camels during the late stages of the advance. Negrine was a mangy settlement of some 30 or 40 adobe huts and concrete buildings built in a defensive circle on the edge of the desert. French information that the Germans had displaced southeast across the desert some 50 or 60 miles to Tozeur indicated the futility of obtaining enemy information at Negrine.

More than 50 miles to the south across shifting desert sands was Nefta, the lone French outpost between Negrine and Tozeur. For a week no word had been received from this outpost, though it was hoped it still existed.

Three days before we arrived, two French officers were killed when their ¼-ton truck struck a German mine as they attempted to reach Nefta. Fifteen enemy tanks were reported at Tozeur, and lively enemy patrol action had been met throughout the area to the south. After the jeep incident no further efforts had been made to reach Nefta.

At Negrine we met Lieutenant Heller, a French officer with whom I was to become well acquainted. Together we pored over maps of the area—French maps with a superimposed British grid.

Orders had been "to seek contact with the enemy to the south." So far, we had not been able to do this. But because we had pushed more than 30 miles south of the company headquarters at Bel el Ater (far out of range of our only radio, the SCR 510). It had been impossible to keep superiors informed. Under these circumstances I made a command decision in keeping



Route of the Reconnaissance Company, 701st TD Battalion.

with my interpretation of my original orders. I decided to try to reach Nefta, and if possible, Tozeur. If 15 enemy tanks were at Tozeur, I knew the company and battalion officers wanted to know it. If I waited for messengers to run back to Bel el Ater and return with new orders, much valuable time would be wasted. It was under these conditions that I decided to take the responsibility for pushing farther south and east.

Lieutenant Heller, in spite of doubts expressed by his colleagues as to the sanity of the trip, offered to accompany me. With his help, we persuaded an Arab scout, who had recently made the trip by camel, to act as our guide, though neither of us had much faith in him.

The half-tracks were left in Negrine, since they would be unable to negotiate the soft sand of the desert, and we proceeded south with only the six jeeps. In the event that radio contact could not be reëstablished, the party left behind was to send a cycle rider back to company headquarters to inform them of our plans.

As we pushed deep into the desert, our lack of effective communication increased. It was now two days since we had been in contact with battalion headquarters at Elma el Abiod. At the end of this weird desert journey we were to learn that two days after we left the half-tracks at Negrine, the entire party was given up for lost—all because of a breakdown in com-

Captain Marvin H. Smith, the author, dressed in the combat garb of the desert. The gloves, he explains, were for protection on cold desert nights.

munications. A searching party actually was formed to recover our bodies.

(Right here, it should be emphasized that long-range radio sets are as vital to reconnaissance as ammunition is to guns. At least an SCR 193 or a similar radio is recommended for each reconnaissance platoon.)

Despite the risks described in the proposed push on to Nefta, all of the men wanted to make the trip. They expected plenty of action and pleaded for a chance to avenge the drubbing taken at Kasserine Pass.

After the men who would make the Nefta trip were selected, those left in the Negrine party were put under the command of a section sergeant, with instructions to inform the Bir el Ater headquarters of our plans and to attempt to maintain radio contact with us.

Our party of 16 men, one Arab, one French officer and myself pushed off on the morning of the third day after we had left Elma el Abiod. We navigated by compass, since no landmarks existed in this vast expanse of shifting sands. Our top speed was about 15 miles an hour through the soft, hot sand. It was necessary to stop frequently to check compass readings, for in crossing small dunes we had a tendency to veer to the right and, unless we had made corrections for these turns, we would soon have been going at a tangent to our desired route.

Our progress was further hampered by the need for continued foot reconnaissance from the sand dune crests. Before crossing each major crest, the men in the leading jeep dismounted on the rear slope and went forward on foot to reconnoiter the area of our projected advance. Now that there was no road to follow, we traveled in staggered column formation with mutual fire support, ready to meet anything over the next dune.

The thermometer must have soared to 120 degrees, and the oppressive heat bore heavily upon us. Motors soon overheated in the heavy going in low gear, and the men shed all but the bare essentials of clothing.

Many of the dunes were so high that the jeeps stalled before reaching the top. We would back off a few hundred yards and, with motors wide open, hit the dune again. It soon became a game for all concerned except the Arab. Unused to traveling in jeeps, he was in a perpetual state of terror. He held on for dear life and offered prayers to his God in loud wails.

The only human contact that we made during the first blistering, searing day came in midafternoon as we topped a mountainous dune. Below us spread a ragged array of tents from which spewed a stream of screaming women and howling dogs. It was an Arab village and apparently the men were off getting water. The column was halted, and the vehicles arranged behind a crest to cover the advance of two men with tommy guns. Once they determined that no enemy were present, we pushed ahead.

It was about 1600 hours when our next break came. We were becoming apprenhensive. Certainly, we thought, we had gone far enough to reach Nefta. We were continually assailed by the fear that we had missed the French outpost, a mere dot in the sandy wilderness. Suddenly, we saw spread in front of us a clump of palm trees growing on the edge of a lake. We estimated the distance at about five miles and pushed forward with everybody in high spirits. We traveled for half an hour, but our oasis was no nearer. Thinking it was farther than we had estimated at first—distances are very deceptive in the desert—we pushed ahead once more. After the second such stop, we determined that we had been fooled by a mirage—as realistic a one as I ever hope to see.

As it turned out, we were approaching the huge Chott Rharsa, a flat salt lake bed with surface so smooth and hard that for the first time we could let our jeeps go and make real speed.

We rechecked our compasses and continued on, a downhearted crew. At about 1730 we saw several men running along the top of sand dunes about 1000 yards to our right front. Two jeeps were dispatched in pursuit, but they were unable to find these ethereal men. A few minutes later a radio call was received from the last vehicle reporting that it had been fired upon. The driver wanted to know what to do. After it was ascertained that nobody had been hit, we continued our advance.

Darkness overtook us, and we were still at a loss as to our distance from Nefta, though it seemed as if we had traveled far enough to reach the outpost and return to our base. In these vague circumstances, we decided to spend the night there on the dunes. The platoon was drawn together in a tight Indian circle of no more than 50 yards in diameter and a walking guard, armed with tommy guns, was posted. We ate a distasteful cold supper of C rations in the piercing chill that clamps down upon the desert as soon as the sun goes down.

All was quiet until 2100. At that hour we heard vehicles moving slowly north to the east of us. We saw a bright flash of light, and then just darkness. All we could do with our meager force was to wait and see what happened. Soon the noise faded in the distance and we returned to sleep. Forty-five minutes later the same motors were heard some two miles on the other side of us, moving south. Once again our patrol sounded the alarm. We all came to the conclusion that we were being looked for by someone, probably a party sent out by the men who had fired upon us the preceding evening. Again the noise faded and we returned to our blankets, but the turn of events had created some uneasiness.

At dawn on the fourth day, after another cold meal of C rations, we moved out. The Arab was slowly becoming educated to eating the American food, though he was showing no enthusiasm for it. But neither were we. With high hopes of entering Nefta within an hour, we moved forward in the same staggered column formation that we had used previously.

Lieutenant Heller, the French officer who accompanied Captain Smith on the reconnaissance trip, is pictured beside a wrecked Allied plane that was found and reported to higher headquarters.

We had traveled about three miles when a soldier was seen approaching on foot. As I dismounted and went forward on foot to investigate, the patrol immediately spread out and covered me with their machine guns. This stranger wore an overseas cap, a long flowing cloak with a red ammunition belt at the waist, and sandals. He carried a rifle. We approached each other cautiously—myself with a tommy gun ready in my hand, and he, as I afterward learned, with his finger on the trigger of his rifle. Through Lieutenant Heller, it was learned that the stranger was a French member of the Arab Desert Command, and his entire patrol, lying just behind the next sand dune, was likewise covering his approach.

After a brief discussion with Lieutenant Heller, the officer agreed to accompany us the remaining 10 miles to Nefta, while his patrol continued on its routine desert mission. It was one of his men who, mistaking us for Germans, had fired on us the day before. And it was they who had been looking for us the night before.

We reached Nefta at about 1000 hours on the fourth morning after we had left our battalion headquarters at Elma el Abiod. Our gasoline supplies and rations were running dangerously low.

Nefta was a cluster of Arab mud huts and a small French brick fortress. We found the entire French garrison of four officers and 12 men outside the building to greet us with two machine guns and eight rifles trained upon us as we roared joyously into the city. They had seen nobody for a week and thought we were the Germans.

Once it was determined that we were Americans, they threw their arms about us in joy and invited us into their headquarters. They bombarded us with questions on the turn of war to the north. They said they were prepared to fight to the last man, since they had no gasoline and only one broken-down American 2½-ton truck. That news about no gasoline didn't bolster our spirits. Our original supply of full gas tanks and an added five-gallon can for each jeep was dwindling after our buffet with the desert sands. It was lucky that a couple of the jeeps had two instead of only one five-gallon gasoline can, or we would have been stranded there.

When we spoke of pushing on to Tozeur, they told us of three men who had left the previous night in a ¼-ton truck and had not been heard from since.

We told them we would go there as soon as we had something to eat and try to learn what had happened to their three men.

Lieutenant Heller and I accepted an invitation to eat with the officers. They served a tasty meal of wine,

A French civilian stands at a distance and gazes curiously at the men of Captain Smith's platoon as they arrived at the Nefta garrison. The French tri-color can be seen in the background waving over the garrison gate.

celery tops covered with oil, French bread, a few olives, and a meat course.

Only after we had finished the meat did they tell us that it was camel steak—the only meat available at this outpost. It was delicious.

We were plenty worried about our gasoline supply that afternoon as we pulled out of Nefta with the good wishes of the garrison and one of the largest French flags I have ever seen. We were to tie it onto the lead vehicle as we approached Tozeur as a sign of friendly troops to the French patrol that had preceded us—if that patrol was still alive.

At Negrine the French commander had told us that we would never be able to enter Tozeur with jeeps. He was certain that the town was occupied by Germans and that it would fall only after a fight.

We carefully avoided a small road that led in the direction of Tozeur. We had gone too far to run chances of setting off German mines at this late date. After three hours we saw Tozeur in the distance. We stopped about five miles from the city and fastened the flag to the leading jeep. It extended as high as the radio antenna. If the French, providing they were still alive, could not see that flag, they certainly would not have been good enough marksmen to hit us anyway.

The patrol spread out as we approached the town. We were within 800 yards, when a vehicle came scooting out from between two buildings. The patrol stopped, and all gunners manned their guns. We were ready to put up a fight; but it proved to be the French patrol. Lieutenant Heller soon learned that the Germans had left the town but 12 hours before. It was nearly sundown when we were taken to the center of the town and introduced to the mayor.

Much to our amazement, we found that Tozeur was a resort town with one modern hotel. That night each man had a room and private bath to himself. What luxury! A paradise in the middle of the desert.

We posted a guard about the vehicles in the hotel courtyard and turned in for the night. But our sleep was of short duration. At about 2400 a French soldier pounded loudly, persistently on the front door of the hotel. He said he had a message for Lieutenant Heller. He said the lieutenant was wanted at the railroad station at once. It was pitch dark, and we thought it was a trap, but we decided to go. We took one jeep with a loaded machine gun, and Lieutenant Heller and myself each carried a tommy gun. As we approached the railroad station, we noted several parked vehicles. We went to the station entrance with our tommy guns at full automatic, but to our relief we learned that a French caravan had arrived to take over Tozeur. We never were certain where it came from, but we were mighty glad that it was there.

With the next town of Metlaoui more than 30 miles away and with our gasoline supply almost depleted, no word from company headquarters, and with only one day's rations left, we found ourselves in a nasty jam, until the natives miraculously came to our aid.

From caches in the desert, the natives dug up several

50-gallon drums of 100 octane gasoline. Stories of its origin varied from one that the British had buried it when the Germans approached, to another that it was saved from a wrecked transport plane and hidden before the Germans could reach it.

We took on all the gasoline we could carry and began a search of the Tozeur area for mine fields—a rather tricky business at best. We found no mines but made notes on all the information that we had gathered, preparatory to moving out the next day—the fifth since we had left Elma el Abiod. Still no word from Negrine or any of the other bases.

Pushing on toward Metlaoui the next morning, we traveled off the roads as usual to prevent running over German mines. When we came upon a bridge, about 15 miles from Tozeur, we fanned out about two miles and dismounted to reconnoiter the area on foot. We found that the Germans and Italians had cut all the telephone wires in the vicinity and had placed the telephone poles through the spans of the bridge to prevent anyone from driving across it. One of the men discovered three grenades hanging on a single thread of wire from one of these telephone poles. That was enough; we moved off at a distance in a hurry and set off the grenades by rifle fire.

We crossed the creek at a ford and continued on our way. As we approached Metlaoui, we noticed scattered letters, ration cans, and some ammunition and clothing lying on the ground, signs of hasty withdrawal by the enemy. Only two cars went into the town. The rest of the party, left at a road junction just outside the city, was instructed to remain there for two hours and, if we did not return within that time, to go back to the base camp at Negrine, directly west of this point.

As we approached the city, we were spied by five children playing in the streets. They immediately ran screaming to their homes, and we proceeded into the town. As soon as we were recognized as Americans, the residents came pouring out of their houses, to form a cheering mass in the streets that immediately halted our progress. They climbed upon the jeep, shook our hands, patted us on the back, gave us wine—good wine—and cried with joy. A pretty French girl hugged and kissed every man in the patrol, which made nobody angry.

We were told that the Germans had left the town only four hours before we arrived. We were gaining on them, but we still had not caught them.

We drove through the streets to the center of this town of some 5,000 persons and conferred with the officials. We had neither the gasoline nor food for further pursuit, and it was necessary that we get the information collected back to battalion headquarters. After searching the town for mines and booby traps, I returned to the road junction where the remainder of the patrol had been left. When the men at the crossroads learned of the reception in town, they set up a howl for a second reconnaissance.

It was about 1400 hours, and we decided we must head toward our base camp and get our information back to Elma el Abiod headquarters. After four hours of uneventful traveling in a general westerly direction, we arrived at Tamerza where we found the garrison hastily erecting fortifications. They had heard the Germans were coming. We assured them the enemy was moving east in the direction of Gafsa. Whereupon they dropped their work and decided to take up pursuit of the Germans. Members of the party who had been left at Negrine were in Tamerza preparing to go out in the desert and hunt for us. It had been three days since we had left them, and we had been out of radio contact for all except the very early hours of that period. They informed us that company headquarters at Bir el Ater had given us up for lost three days ago.

We returned to our base at Negrine where we picked up our half-tracks and then headed almost north to company headquarters at Bir el Ater. From there our reconnaissance report was radioed to battalion headquarters at Elma el Abiod. Headquarters was very much pleased with it, for our reconnaissance showed that the entire southern area was now clear of the enemy. Just a few days later, the Germans, who had fled from Metlaoui before we arrived, were shoved out of Gafsa, and the British Eighth Army continued its unrelenting push up the Tunisian coast.

Conclusion

This patrol brings out several pertinent points:

First, the need for better communications for reconnaissance units.

Second, the advisability of using the smallest number of men and vehicles possible to accomplish a mission. In the above reported case, it would have been futile to have attempted to continue beyond Negrine with the half-tracks.

Third, much can be gained by a reasonable show of initiative. By moving on south of Negrine we cleared up doubts about a broad area at a great saving of time. Since it was found that danger of enemy action no longer existed in that section the battalion was relieved for action elsewhere. This could not have been learned had our reconnaissance stopped at Negrine.

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British Rec

British Official Photo

The Reconnaissance Corps, the "armed eyes of the army," seeks out the enemy and establishes preliminary contact. Dispatch riders play an important part by taking messages and keeping in touch with the various units.

THE Reconnaissance Corps is not only the eyes and ears of British infantry divisions, but is also prepared to serve as a clenched fist. One battalion of the corps is attached to each division, and has as its main task the gathering of information, by aggressive means if necessary. Thus the corps fills a rôle which used to be that of the cavalry. Its regiments, feeling their way forward and throwing a screen in front of the advancing army, are careful to let the main forces know with what enemy strength they are confronted.

Fighting for information is the Reconnaissance Corps' chief function, and a regiment must expect to find itself far in front of the main forces. Widely extended, it searches likely localities for trouble, or watches the enemy's movements. Again, it may be called upon to capture or defend important ground, or to send out patrols to give warning of the enemy's approach. The only circumstances in which the corps is not called upon to operate are those, such as prevailed at El Alamein, when the opposing armies found themselves in close contact. The moment that battle is given, while the forces maneuver for position, the Reconnaissance Corps comes into its own.

The Corps did particularly impressive work during the Tunisian campaign. In the first stages of the operations of the First Army, reconnaissance regiments moved two hours ahead of the infantry divisions to which they belonged and acted as an armored screen. Sometimes they advanced as much as 40 miles ahead of the main forces on their tireless search for the enemy. With the enemy found, their job was to overcome him if the opposition was light, and thus clear the way for the infantry advancing in their wake. If this was impossible, they would pin-point and make contact with the enemy so that on the arrival of the infantry they could promptly and accurately be put in touch with the position.

With such a rôle, it will be seen that the regiments of the Reconnaissance Corps have to be specially equipped for both speed and striking power. In fact, each regiment has a great fleet of mechanized vehicles of various types which include armored cars and Bren carriers, troop-carrying trucks and motorcycles. In Tunisia armored car patrols often averaged between 50 and 60 miles an hour at their work. The armament of a reconnaissance regiment includes antitank artillery, batteries of mortars and great quantities of Tommy guns and light machine guns. It is, in fact, equipped with all the infantry weapons, with an especially high percentage of automatic arms.

During training, great care is taken in seeing that the Reconnaissance Corps lives up to its reputation as a "corps d'elite." Trainees are chosen with great discrimination, and after basic training are sent to the specialists' squadron where "talent scouts" keep close watch on them during the early stages of their work, so that in due time they can pick the right men for the right job. The company which produces signallers, motorcyclists and mechanics has the first choice of the personnel available.

Wireless is the life blood of reconaissance in modern warfare, and the signallers are the most important trainees in the corps. In three months, recruits master three different types of wireless sets which send information from the smallest sub-unit to regimental headquarters. Messages must be transmitted on the Morse Buzzer at rates of 12 to 15 words a minute. Scores of motorcyclists are also used by each regiment for intercommunication. The mechanics are trained intensively and in three months master a trade which could not be learned in less than a year during peace time.

Other companies train men for work with the armored cars and carriers. These crews must learn enough of tactics to take their place in an operational scout platoon when posted away from the training center. The correct procedure for transmitting messages to a receiver over 20 miles away must be mastered. Crews must also be well trained in map reading, in field engineering, demolition, and mine clearing, among other subjects.

Assault infantry are trained in another company. They are taught to swim rivers and scale rocks in full kit and are hardened by intensive drill, physical training, and long marches and exercises on the scantiest of rations.

The men produced in this hard school have proved superbly effective in action. Many stories are told of their work in Tunisia, in which not only their re-

★Prepared by the Joint Liaison Committee.

econnaissance Corps ★

markable speed but also their hitting power proved to be important factors in hard fought engagements. After the first advance from Algiers, one troop with a battalion in the First Army was given the task of racing forward to seize and hold a bridge beside a small village. The bridge was tactically important as it commanded a road, access to which was necessary for lines of communication. The troop was ordered to seize the bridge, if possible, before the Germans took it, and, if too late to do that, to drive the enemy from it. The armored cars went forward at top speed with the Bren carriers behind, and the unit reached the village in the early hours of the morning, eager to go into action for the first time.

On approaching the bridge, the troops decided that the best way to hold it was to go some two miles beyond it and make their dispositions there, on the far side of the village. They dug weapon pits, posted sentries, and settled to wait for the Germans. As they were not attacked that night they decided at first light to send out a fast armored car patrol to discover the whereabouts of the enemy. Some 10 miles from the bridge this patrol spotted the Germans, put down a smoke screen to cover their retreat, and got back in time to warn the troops holding the bridge of the enemy's approach. As a result, when the enemy attacked that afternoon with a force five times as strong as that holding the bridge, the troop's plans were made and it was able to repel the attack with very severe casualties to the enemy and with but slight loss to themselves. The troop was able to hold its position until ordered to withdraw by the division commander.

Among other stories of the deeds of the Reconnaissance Corps in Tunisia is one that shows how a fighting patrol goes to work. It happened that near Medjez el Bab the enemy had penetrated into a valley that was of great tactical importance. They had occupied several farms in this good tank country where there was much open ground with few obstacles. A troop of the Reconnaissance Corps was given the task of attacking one of these farms which had proved extremely troublesome. Its task was to see if it were held by the enemy, and if so, in what strength. The spearhead of our attack was formed by two heavy armored cars which approached the farm along a very open track with a hill on one side and thick bushes on the other.

The leading car was within 200 yards of the farm when two German antitank guns opened fire on it. The leading car was hit three times and completely knocked out. The second car also was hit, the turret damaged, and three members of the crew wounded. The driver of this car, however, was uninjured, and he promptly made for the farmyard, thrust his Tommy gun through the driving vizor and did not cease firing until he had polished off the crew of the German machine gun. Then he swung his car back across a ploughed field and around the rear of the antitank guns which were still firing at him, and thus made his way to our lines. During the return trip his car had received two more direct hits, and when he finally returned, it was almost completely wrecked. This exploit was a typical example of how the Reconnaissance Corps goes to work. It fought for its information, found out that the enemy was on the farm, where his guns were, and how this strong point could best be attacked.

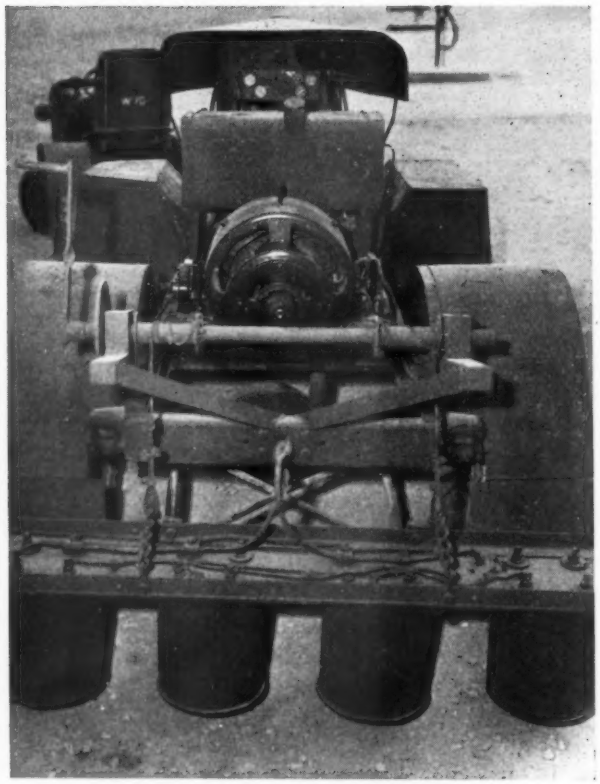
The Reconnaissance Corps also succeeded in capturing a good many of the German parachute troops during the Tunisian operations.

It is clear that every man in the Reconnaissance Corps must be an individualist, capable of taking the initiative into his own hands, as he may have to do vitally important work while temporarily out of touch with his officers.

One of the youngest units and one of the most highly mobile in the Army today, the Reconnaissance Corps gave a superb account of itself throughout the Tunisian Campaign. It fought for information and got it, and ably acquitted itself in the three other main tasks which fell to it. It protected the main flank of our forces; it seized and held ground needed for the advance of our divisions; and finally, it repeatedly sent out far reaching patrols which gave due warning of enemy approach.

This line of Humberette scout cars, proceeding along a country road, are alert against possible air attack.

British Official Photo



The Armored

Saves Tires and Sa

A BOON to the national rubber conservation program is the queer, helpless looking, yet terrifying gadget constructed in the Wheeled Vehicle Department of the Armored School at Fort Knox.

The whole idea grew out of the increased incidence of punctures and cut tires in the Armored School area, which two years ago was literally blanketed with buildings 10%, 25%, and 50% complete and a few just finished. The accompanying menace of nails, wire and miscellaneous metal oddities loomed very large at a time when rubber was becoming increasingly valuable and its care imperative.

The device which aided materially in solving the tire destroyer problem at Ft. Knox was created according to a single specification—that the device be capable of attracting and holding a 100-pound anvil. This was to insure enough magnetism so that no mere nail would ever go unnoticed within two feet.

Two views of the Armored School's big new road magnet, which picks up nails, wire and other metal that might damage tires. Above: rear view—the tractor in background furnishes the motive power. The "guts" have been removed from the differential housing on the "bug's" rear axle. Below: The men who built the road magnet. They are, left to right: Master Sergeant C. A. Bonnarens, Private C. R. Stone, Private B. R. McNamara and Master Sergeant B. Pelton, all of the school's Wheeled Vehicle Department.

ed School's Road Magnet

d Salvages Scrap

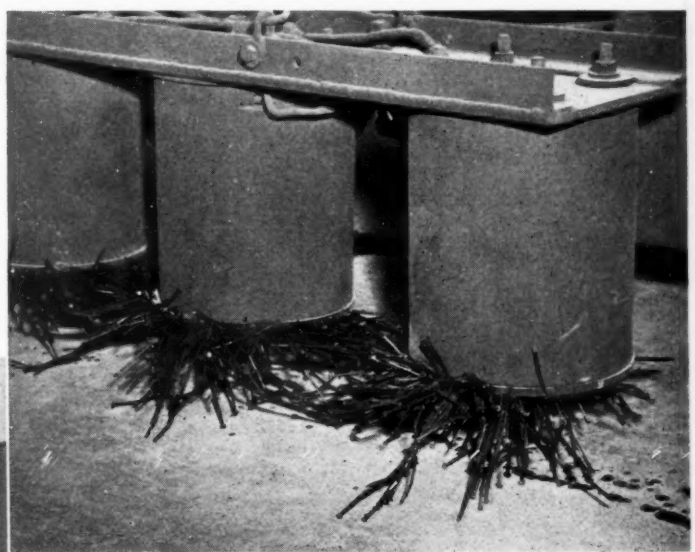
Consisting of a stubby frame (salvage), an old engine (reconditioned), a DC generator, with rheostat (cost $80.00), and four magnets, the completed whatyoumaycallit has many times repaid its cost with the amount of metal scrap it has picked up as well as tires it has saved from punctures.

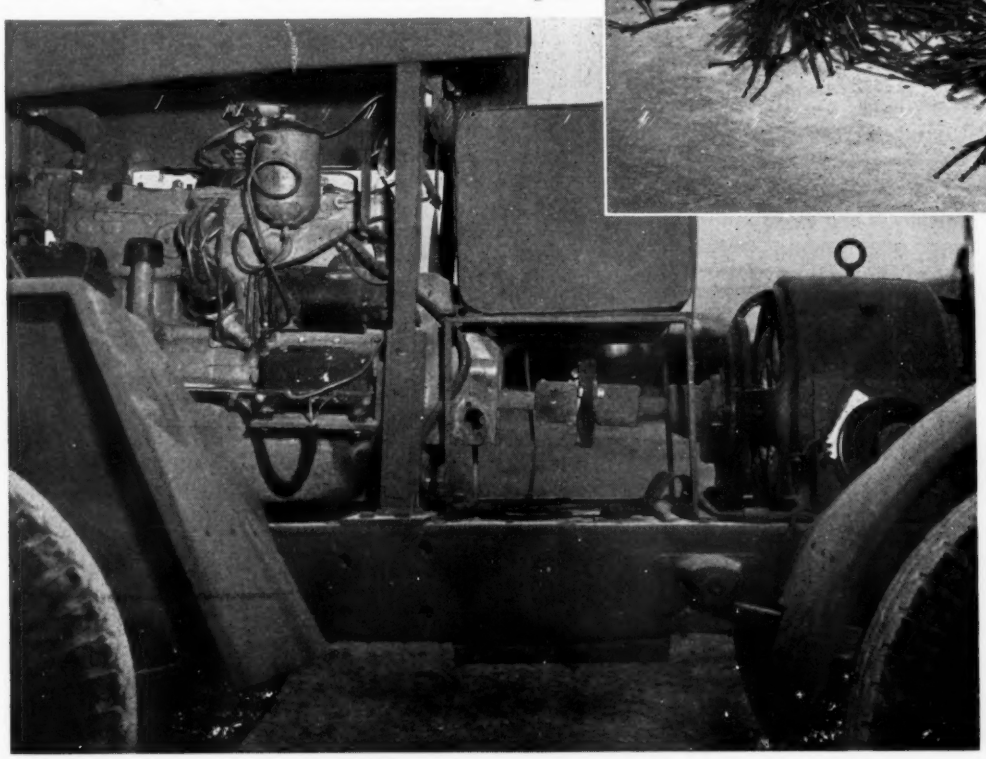
The first step in the construction was to cut down an old 4 x 2 chassis (I.C.'d) by taking a section out of the center and leaving frame and wheels with a 60-inch wheelbase. A dead axle was substituted for the live axle. A good strong hitch was added. The engine was mounted on the front half, and the generator on the rear half of the chassis. A machined flange was bolted directly to the flywheel with a flexible coupling on the shaft between the flange and the generator. A 54-inch bracket was added to the rear of the frame to support the magnets. A windlass incorporated into the bracket allows the magnets to be raised and lowered as necessary.

Each magnet consists of a 4 x 4 mild steel core with corners rounded. The core is welded to a 12-inch circular section of old boiler plate and is wound with No. 8 wire from the salvage yard, brazed at the splices. Each coil of a pair is connected to the other of the pair in series, and the two pairs to each other in parallel. One magnet can actually lift the anvil 6 inches by attraction.

Statistics show that during 70 hours of operation in the Armored School area the machine has picked up 1017 pounds of metal, mostly nails and short pieces of wire. It was borrowed by the Post Engineer, who ran it over an area where old buildings had been razed, and in one and one-half hours picked up 1500 pounds of nails, which proves that it has the additional advantage of being able to salvage critical scrap as well as protect precious tires from unnecessary injury.

In the miscellany collected was a battered gallon bucket, a "STOP" sign, 3 second lieutenant bars, and 41 rubber heels complete with nails.





Above is a close-up of magnets and bracket. Only about 45 amps of the generator's 80-amp capacity are required.

Side view at left shows the weld in the frame and the flexible coupling. The battery is just visible behind the weld.

Jeff–The Army's Sa

A trained pack horse with a cavalry machine gun troop takes a hurdle on maneuvers. Equipped with Phillips Pack Saddle, the horse transports the gun without difficulty.

by Lieutenant Otto H. Frederickson

THAT mechanized warfare has far from eclipsed the importance of animal transport can readily be seen when it is considered that two large plants are supplementing the Jeffersonville Quartermaster Depot in the manufacture of Phillips Pack Saddles alone.

Press reports of operations in China, New Guinea, as well as Tunisia and Sicily have "spotlighted" the usefulness of pack animals in supplying our troops and those of our allies with the sinews of war. In the jungles of the Southwest Pacific, and the mountainous terrain of Europe and Asia, pack artillery and pack trains have been pressed into service when the going became too tough for mechanized units.

No single activity stands out more vividly than the procurement and fabrication of saddlery and harness equipment in the long and colorful history of this depot, situated at the falls of the Ohio River, in Southern Indiana. Since its establishment seventy-nine years ago, it has been identified with the purchase, storage and issue of harness, horse drawn vehicles, hardware and kindred items.

The Spanish-American War witnessed the ever-widening use of harness and harness parts in warfare. Virtually all the equitational equipment used by our cavalry and other arms and services in that war were procured or fabricated at Jeffersonville. Harness turned in by organizations mustered out of service at the close of that conflict was shipped to this depot for repair and reclamation. The manufacture of hand-sewn ambulance harness followed after the completion of the reclamation program.

The harness and leather shops were not found wanting in the development of new techniques and fabrication of new items when the United States entered World War I. Demands of that war made it necessary to enlist the coöperation of many leather manufacturing plants under contracts processed by the Jeffersonville depot.

In the early twenties much of the metal, leather and textile machinery had been transfered to this depot from the Rock Island Arsenal as the result of the assumption by the Quartermaster Corps of many articles formerly handled by the Ordnance Department. This greatly facilitated the experimentation, modification and development program of army equipment.

There is nothing in its history of which the Depot is prouder, or has achieved wider fame, than the Phillips Pack Saddle, developed by Colonel Albert E. Phillips, (Cav.) QMC, a veteran of forty-five years of military experience, and the recognized originator of indirect machine gun fire as well as the organizer of the first machine gun troop in the American cavalry.

Upon Colonel Phillips' return from France in 1919 (where he was Chief of the Ordnance Small Arms Service on General Pershing's staff), the War Department placed on his shoulders the responsibility for the development of a pack saddle suitable for all branches of the Army. The Phillips Pack Saddle for cavalry gaits won out in competition with the pack equipment of all first-class military powers.

Colonel Phillips not only designed the pack saddle, but also designed the carriers and hangers which permit the saddle to meet the needs of all branches of the Army. There are two types of Phillips pack saddles—the Cavalry Pack Saddle, and the Cargo Pack Saddle adopted for pack artillery and pack trains.

Where motors cannot go, pack units can. This view shows Phillips Pack Saddles being assembled at the Jeffersonville QM Depot, ready for service on the world's battlefronts.

's Saddlery Center

Basically different from that of any of the world's pack saddles, the design of the Phillips Pack Saddle permits a quick and easy adjustment of the pads to fit the types of animals for which the saddles were created. As developed, the frame will carry rope-hitched cargo loads, top loads, or side hanger loads. The breeching is a unique feature, and even the method of cinching is different. As issued, the saddles will fit from 90 to 95 per cent of the animals without pad adjustments.

As Consultant on Saddlery and Harness at the Jeffersonville QM Depot, Colonel Phillips was keenly aware of the rôle to be played by pack equipment on the various battle fronts, by both American and Allied forces, particularly in the Pacific and Far East, and China where a lighter class of animal prevails.

As a result of his research, there was announced in August of this year the design of a new Phillips Pack Saddle, Cargo, Modified, which was specifically designed for the light type horse and mule weighing approximately 900 pounds. At present the Jeffersonville depot is the only plant tooled to manufacture the new saddle.

For China, Colonel Phillips designed a modified form of the Cavalry Pack Saddle for packing American 75mm howitzers on the Mongolian 800-pound ponies. Thousands of these saddles are now in China.

The Phillips Military Officers Saddle, the first forward seat saddle in America, is the pride of the trained rider. The 1941 model is the fully developed saddle.

Of the seventy-four classes of supplies listed in the Quartermaster Supplement to the Federal Standard Stock Catalogue, the Jeffersonville Quartermaster Depot is charged with the procurement and/or manufacture of eleven. Tentage and manufactured canvas articles comprise the largest purchase. Other supplies include the following: mess furniture, field safes and camp tables; lighting apparatus; harness, saddlery, pack equipment and various leather items; hand-tools except for motor transport; tableware; bake-shop apparatus and kitchen equipment, including "Outfit, Cooking, Cavalry Pack"; field ranges and bake ovens; hand and animal drawn vehicles; agricultural implements; individual equipment, such as canteen covers, shelter-half tents, canteens, meat cans, canteen cups, haversacks, cartridge belts, etc. Altogether, the depot stores over 27,000 articles and procures or fabricates 500 more.

Each of our nation's conflicts has witnessed intense activity at Jeffersonville. The requirements of the present war dwarf by comparison any of the previous demands placed upon this quartermaster depot. Today it is charged with the fourfold functions of procurement, manufacture, research and development, and the general storage and issue of supplies to America's armed forces.

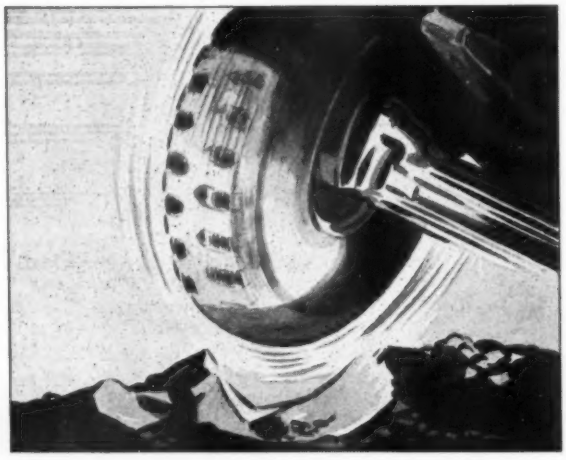
Colonel Albert E. Phillips, who has been stationed at the Jeffersonville Quartermaster Depot as Executive Officer since January 30, 1941, in an appropriate ceremony given in his honor September 26, 1943, was presented the Legion of Merit "for exceptionally meritorious conduct in the performance of outstanding service in connection with development, procurement and administrative activities." A cavalry officer of the Regular Army, Colonel Phillips has forty-five years service, spent partly with the infantry and ordnance. For the past seventeen years he has served with the Quartermaster Corps, where his time has been devoted largely to developing Army equipment—numbering hundreds of items of military importance. He retires from active duty in January.

Design of Phillips Pack Saddles is basically different. Pads may be adjusted quickly and easily to fit the types of animals for which designed. This scene shows craftsmen in the Harness and Saddlery Shops at JQMD stuffing the pads.

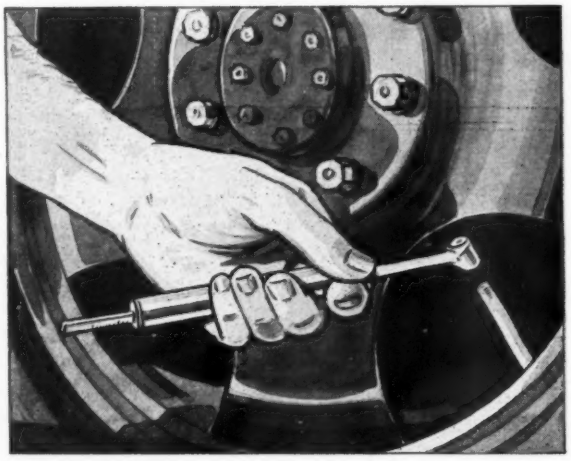
DO'S *and* DONT'S ON *Tire Care*

Tires now rank higher than ever among critical items. Army trucks in the U. S. must depend mainly on recaps in 1944. New tires must be saved for combat zones. These tire tips, from TM 31-200, are vital. Have you read *your* copy lately?

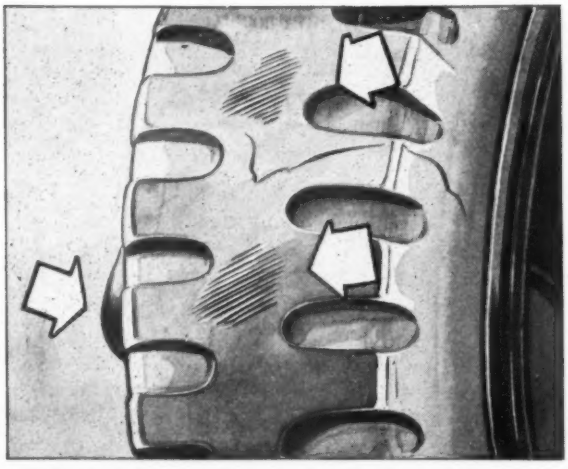
"Avoid "jackrabbit" starts and jamming on brakes. These practices tear rubber like a grindstone.



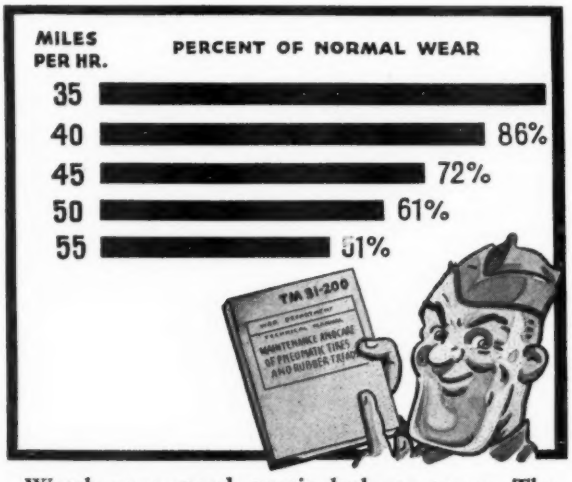
Avoid stones, ruts, holes and curbs. Obstructions damage a tire's cord body, causing tire failure.



Check tire pressures daily. Pressures too high or too low will ruin casings—make them unfit for recaps.



This tire, blistered, worn through to the cord, is unfit for recapping. Inspect tires! Recap in time!



Watch your speed, particularly on turns. The rate of wear mounts when you pass army speed —35 miles per hour.

Book Reviews

TOTAL PEACE. By Ely Culbertson. Doubleday, Doran & Co. $2.50.

A year ago Mr. Culbertson published his *Summary of the World Federation Plan*. This book was the fruit of many years of study and experience. Six universities and three revolutions contributed their share toward his understanding of mass psychology and power politics.

The author describes his second book as follows: "*Total Peace* is more than a mere elaboration and improvement of the *Summary of the World Federation Plan*. . . . Although a modern plan for collective defense and an international police force is the main purpose of this book, many chapters present new principles of United States foreign policy and are designed to help an intelligent reader find his way in the complex mechanisms of power relations among nations."

The same balanced, shrewdly analytical mind that produced the forcing system of contract bridge is evidenced in every chapter of this fascinating book. It is particularly interesting to note that many of the same principles that apply to contract are equally true when applied to power relations in the world.

WORLD WAR II. By Frank Monaghan. J. G. Ferguson & Associates. $7.50 Deluxe Edition; $5.00 Regular Edition.

The author of this book is now a major in the Army of the United States. He was formerly assistant professor of history and fellow of Calhoun College, Yale University. He commences his book where any authoritative history of the present war must begin, at the Treaty of Versailles. He covers in detail the incidents, great and small, that have aggregated to produce the present conflict. From this point the events of the war are chronicled through 1942.

It is freely admitted that there is much that cannot be told at this time, but Major Monaghan maintains that these omissions are superficial, and that fundamental facts remain the same.

Plans are in progress to write the second volume when events have completed it.

THE GROWTH OF THE RED ARMY. By D. Fedotoff White. Princeton University Press. $3.75.

Mr. White has an enviable reputation for remarkable fairness among both Reds and Whites. He has utilized his objective attitude to excellent advantage in this history of the organizational growth of the armed forces of the Soviets.

This is not a tactical study, and it does not deal with exploits. Rather, it is an effort to approach the Red Army as a striking social phenomena of the times, peculiarly indicative of the trends of the nation itself. For the present this book stands alone as the only study of its kind.

THE NAVY AT WAR. William Morrow and Company. $4.00.

The Navy At War is a book of paintings and drawings, not only of the navy, but of the army as well, by Lt. Commander Griffith Baily Coale, Lt. Dwight C. Shepler, Lt. Mitchell Jamieson, Lt. William F. Draper and Lt. Albert K. Murray. Of this project, Admiral Hepburn said: "These men have not done their painting in ivory towers, nor have they used the war as a test tube for new theories of art and expression. They have risked their lives, as have the men behind the guns, in order to give, in a simple graphic medium, a better appreciation and a more complete insight into what is being done by our fighting men on the world's far-flung battlefronts."

Lt. Jamieson has done excellent work in the North African Theater. His work, even as a student at Corcoran, showed marked ability, and his maturity in both color and composition is most interesting.

Lt. Draper's paintings and drawings on the Aleutians exhibit a markedly different technique, more dependent on color than line for its power.

Lt. Shepler is definitely at his best in portraiture.

Commander Coale's work is primarily an example of what happens to a potentially good artist when he confines himself to drafting for too long.

EMPIRE. By Louis Fischer. Duell, Sloan & Pearce. $1.00.

A powerful book, founded on facts, giving figures and authorities, and compiled with logical exactitude of thought, always warrants serious attention.

Mr. Fischer, in this small volume, deals with the problem that he feels is the greatest deterrent to the successful avoidance of a third World War—the practice of empire building and maintenance.

He turns to history to show that no mother country has ever considered its colonies able to rule themselves. Yet when free to solve their problems, the colonies have frequently not only smoothed out past difficulties, but have been of increasing instead of static value to the world. Mr. Fischer points out that the conditions prevailing in a subjected Asia are a detriment to the world at large.

Empire may never go beyond the shelves of the libraries of advanced thinkers, but in years to come the truths propounded in it must inevitably come into their own.

CONDITION RED. By Commander Frederick J. Bell, U.S.N. Longmans Green & Co. $3.00.

Condition Red takes its title from the signal of impending attack in the South Pacific. While it is essentially the story of the ship commanded by the author, the narrative gives a general picture of destroyer action in battle, in convoy, and on patrol.

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A SHORT HISTORY OF THE CHINESE PEOPLE. By L. Carrington Goodrich. Harper & Brothers. $2.50.

The history of Europe is taught to young Americans as a matter of routine, whereas the history of China and other Asiatic countries can be secured only in college, and then, as a rule, only in special courses. As the world narrows its lanes of travel and widens its contacts between nations, it becomes essential for the "average" citizen to assimilate some knowledge of the Eastern nations, their history, economics, social and religious customs.

Mr. Goodrich has filled a serious need in the intelligent man's education by writing this compact and compre hensive book on the history of China. The information is well organized and tabulated, with ample index and chronological charts paralleling European eras and Chinese dynasties with their comparable accomplishments. For those who wish to pursue the subject more thoroughly, or along specific lines, a supplementary reading list is supplied by chapters.

MILITARY PSYCHOLOGY. By Norman C. Meier. Harper & Brothers. $3.00.

This book deals in simple and direct language with the main problems involving military affairs and psychology in relation to each other. It discusses the selection and placement of personnel, the problems of adjustment created by actual combat, the traits and qualities essential to a leader and the effects of mass psychology.

One feature, too often missing, that is worthy of comment is the inclusion of a glossary of psychological terms and their clinical meanings. This should prove of tremendous value to the layman in reading not only this book but others more technical on the subject.

THE COMPLETE JEFFERSON. Arranged and assembled by Saul K. Padover. Duell, Sloan and Pearce. $5.00.

For the first time Jefferson's writings, except for his letters, have been compiled and arranged by subject matter in such a way that they may be read for pleasure or consulted for reference. The variety of his interests and the immensity of his mind are incredible.

This book makes available to all men what, until now, has been food only for scholars—the wisdom set down for us by the "Author of the Declaration of American Independence, of the Statute of Virginia for religious freedom, and Father of the University of Virginia."

LEND-LEASE. By E. R. Stettinius. Macmillan Company. $3.00.

Too few people know why Lend-Lease was necessary, how it has been set up, or what its primary functions are. The former administrator of this phase of our war program has written a simple, straightforward and readable account of our solution of the problem of getting supplies to our Allies, and the equally important record of what we have received from them. There are charts and pictures to assist the reader in comprehending the magnitude of the job and the method by which it is accomplished.

BLITZ GERMAN. By Dr. Rudolf Brandl. Military Service Publishing Co. $.75.

A companion to *Blitz French* and *How to Say It In Spanish*, this book meets the growing demand for a superficial knowledge of German. These books do not attempt to teach a thorough knowledge of the language. They endeavor to supply a good workable vocabulary of words and phrases essential to a person entering the country. Even those who have a slight knowledge of German should find this pocket-size guide, with its English-German, German-English listing, a great convenience.

A SOLDIER'S CHRISTMAS READER. Edited by George Macy. Heritage Press. $2.95.

It is most unfortunate that this book, and its companion, *A Sailor's Christmas Reader* did not reach the booksellers until the mailing date for service men abroad had passed.

The book contains 9 full length books, 12 short stories, 15 essays and over 250 poems. As in all anthologies, many features are hackneyed to the avid reader, but all of the inclusions are interesting examples, sufficiently varied in type to supply a general appeal.

A BASIC MANUAL OF MILITARY SMALL ARMS. By W. H. B. Smith. Military Service Publishing Co. $2.00.

Military men, collectors, manufacturers and designers will be equally interested in this manual. It covers arms from Austria, Belgium, Great Britain, Denmark, Finland, France, Germany, Hungary, Italy, Japan, Mexico, Soviet Union, Spain and the United States. The drawings are excellent, and the photographs are not only deliberately posed to show how to handle and care for the weapons, but also to show the parts from so many angles that they may be identified easily during dismounting and reassembling.

TALES OF THE PIONEERS. By W. A. Chalfant. Stanford University Press. $3.00.

Whether your ancestors were pioneers or not you will be interested and certainly amused by Mr. Chalfant's collection of stories of the California-Nevada border—stories he has heard recounted, or has seen occur in his fifty-five years as editor of *The Inyo Register*. "Law As It Was Administered" should certainly be included in any anthology of American short stories.

ROGER WILCO: ABC OF RADIO FOR FLYERS. By Lt. Adras P. LaBorde. Military Service Publishing Co. $2.00.

A book on the proper use of radio in flying should need no sales talk. Every aviator, military, transport or amateur, knows the importance of radio to safety in flying. Lieutenant LaBorde has covered signals and their proper use in such a manner as to emphasize this importance in efficient flying.

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HOW TO WRITE A MILITARY LETTER. By Corporal David Klein. Military Service Publishing Co. $1.25.

A popular magazine recently quoted the formula for getting ahead in Washington: "Shoot the bull, pass the buck and make seven copies of everything." It is to the "seven copies of everything" that this much needed and long awaited book applies.

The text covers the required forms, punctuation, spelling, grammatical construction and use of certain words as preferred by the War Department. The book is well indexed and as brief as is compatible with the subject.

HORSES: THEIR SELECTION, CARE AND HANDLING. By Margaret Cabell Self. A. S. Barnes and Co. $3.00.

Written primarily for the beginner, this book is a welcome publication at this time when many of the old books on horsemanship are out of print. Excellent photographs not only illustrate many important features but make a valuable asset to visual readers, particularly children.

THE ARMY READER. Edited by Lt. Colonel Karl Detzer. Bobbs-Merrill Co. $4.00.

The editor of this collection states that its purpose is "to tell the story of the American Army." As is the case in most anthologies, some inclusions fulfill this purpose and others do not. A number of the articles are by men who have studied for years that particular branch of the service with which they have been connected, and who have endeavored to explain carefully and lucidly, for the benefit of civilians, the purpose of their particular arm. Articles of this type, and stories of combat by men who actually participated, such as "The Fighting 26th" by Clark Lee (reprinted from The CAVALRY JOURNAL, March-April, 1943) are well worth reading. Just how valuable articles by men who are not, and never have been, sufficiently a part of the army to become identified with it may be in instructing civilians is a question deserving serious consideration by any editor.

AMMUNITION. By Melvin M. Johnson, Jr. and Charles T. Haven. William Morrow & Co. $5.00.

The authors of *Automatic Arms* have turned their attention to ammunition and compiled a history of it from the beginning of the paper musket cartridge to the present day. The book covers both early and modern pistol or revolver cartridges and all the foreign as well as American sporting cartridges. It includes a discussion of the larger type of fixed ammunition—the .50 caliber, 20mm, 37mm and 40mm shells and cartridges now being used in aircraft, antiaircraft and antitank cannon. With the professional soldier in mind, the authors have incorporated information on the function of ammunition, its stoppages in basic types of weapons, and a general discussion of practical ballistics, accuracy, sight adjustment.

For the man interested in firearms, *Ammunition* will take its place on the shelf with *Automatic Arms, The Sharps Rifle, History of the Colt Revolver,* and *The Rifle in America*—all authoritative books on the subject.

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